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TRANSACTIONS

—OF THE—

MEDICAL SOCIETY,

OF THE STATE OF

NORTH CAROLINA.

FORTY-FIRST ANNUAL MEETING

—HELD AT—

GREENSBORO, N. C.,

May 15th, 16th and 17th, 1894.

WILMINGTON, N. C.:
JACKSON & BELL, STEAM POWER PRESSES,
1894.

TIME, PLACE AND OFFICERS OF THE MEETINGS

——OF THE——

Medical Convention and Medical Society

OF THE STATE OF NORTH CAROLINA.

PRESIDENT.	VICE-PRESIDENTS.	SECRETARY.	TREASURER.
	Medical Convention, Raleigh, April, 1849.		
F. J. Hill.		W. H. KcKee.	
	First Annual Meeting—Raleigh, April, 1850.		
J. E. Williamson.		W. H. McKee.	W. G. Hill.
	Second Annual Meeting—Raleigh, May, 1851.		
Edmund Strudwick.	C. E. Johnston.	W. H. McKee.	W. G. Hill.
	Third Annual Meeting—Wilmington, May, 1852.		
J. E. Williamson,	Thos. N. Cameron, Wm. G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood.	J. J. W. Tucker.
	Fourth Annual Meeting—Fayetteville, May, 1853.		
J. E. Williamson.	W. G. Hill, Johnston B. Jones, J. G. B. Myers, N. J. Pittman.	W. W. Harris.	Daniel Dupree.
	Fifth Annual Meeting—Raleigh, May, 1854.		
J. H. Dickson.	N. J. Pittman, J. G. B. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell.	Daniel Dupree.
	Sixth Annual Meeting—Salisbury, May, 1855.		
J. H Dickson.	J. Graham Tull, Owen Hadley, A D McLean, Hugh Kelly.	S. S. Satchwell.	J. B. Dunn.
	Seventh Annual Meeting—Raleigh, May, 1856.		
C. E. Johnston.	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell.	J. B. Dunn.
	Eighth Annual Meeting—Edenton, April, 1857.		
C. E. Johnston	Marcellus Whitehead, O. F. Manson, H. W. Faison, E T. Gibson.	W. G. Thomas.	J. B. Dunn.

Ninth Annual Meeting—Newbern, May, 1858.

W. H. McKee.	Edward Warren, C. W Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas.	J. B. Dunn.

Tenth Annual Meeting—Statesville, May, 1859.

W. H. McKee.	Jas. G. Ramsay, Peter E. Hines, J. R. Mercer, Wm. T. Howard.	W. G. Thomas.	C. W. Graham.

Eleventh Annual Meeting—Washington, April, 1860.

N. J. Pittman.	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas.	C. W. Graham.

*Twelfth Annual Meeting—Morganton, May, 1861.

N. J. Pittman.	J. J. Summerell, C. T Murphy, G. W. Hodges, W. A. B. Norcum.	W. G. Thomas,	C. W. Graham.

Thirteenth Annual Meeting—Raleigh, June, 1866.

J. J. Summerell.		W. G. Thomas.	C. W. Graham.

Fourteenth Annual Meeting—Tarborough, May, 1867.

Will Geo. Thomas.	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell.	C. W. Graham.

Fifteenth Annual Meeting—Warrenton, May, 1868.

S. S. Satchwell.	Hugh Kelly, Geo. A Foote, Chas. J. O'Hagan, J. H. Baker.	Thos. F. Wood.	J. W. Jones.

Sixteenth Annual Meeting—Salisbury, May, 1869.

E. Burke Haywood.	Thos. E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thos. F. Wood.	J. W. Jones.

Seventeenth Annual Meeting—Wilmington, May, 1870.

Chas. J. O'Hagan.	E. A. Anderson, F. N. Luckey, W. R Sharpe, R. L. Payne.	Thos. F. Wood.	J. W. Jones.

Eighteenth Annual Meeting—Raleigh, May, 1871.

Hugh Kelly.	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L Kirkby.	Thos. F. Wood.	J. W. Jones.

Nineteenth Annual Meeting—Newbern, May, 1872.

W. G. Hill.	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcum.	Jas. McKee.	J. W. Jones.

Twentieth Annual Meeting—Statesville, May, 1873.

Marcellus Whitehead.	W. T. Ennett, William Little, Chas. Duffy, T. P. German.	Jas. McKee.	Hahnson.

Twenty-First Annual Meeting, Charlotte, May, 1874.

W. A. B Norcum.	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	Jas. McKee.	H. T. Bahnson.

Twenty-Second Annual Meeting—Wilson, May, 1875.

W. J. Jones.	Walker Debnam, J. A. Gibson, Wm. Little, D. N. Patterson.	Jas. McKee.	H. T. Bahnson.

Twenty-Third Annual Meeting—Fayetteville, May, 1876.

Peter E. Hines.	Jos. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	Jas. McKee,	H. T. Bahnson.

Twenty-Fourth Annual Meeting—May, 1877.

Geo. A. Foote.	J. K. Hall, B. W. Robinson, A. A. Holmes, A. A. Hill.	L. J. Picot.	A. G. Carr.

Twenty-Fifth Annual Meeting—Goldsboro, May, 1878.

R. L. Payne.	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot.	A. G. Carr.

Twenty-Sixth Annual Meeting—Greensboro, May, 1879.

Chas. Duffy, Jr.	J. A. Gibson, Willis Alston, Jas. McKee, A. A. Hill.	L. J. Picot.	A. G. Carr.

Twenty-Seventh Annual Meeting—Wilmington, May, 1880.

J. F. Shaffner.	J. K. Hall, W. C. McDuffie, W R. Wilson, R. F. Lewis.	L. J. Picot.	A. G. Carr.

Twenty-Eighth Annual Meeting—Asheville, May, 1881.

R. B. Haywood.	J. A. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot.	A. G. Carr.

Twenty-Ninth Annual Meeting—Concord, May, 1882.

Thos. F. Wood.	T. J. Moore, D. J. Cain, S. B. Evans, John McDonald.	L. J. Picot.	A. G. Carr.

Thirtieth Annual Meeting—Tarboro, May, 1883.

J. K. Hall.	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot.	A. G. Carr.

Thirty-First Annual Meeting—Raleigh, May, 1884.

A. B. Pierce.	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot.	A. G. Carr.

Thirty-Second Annual Meeting—Durham, May, 1885.

W. C. McDuffie.	Jas. McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy.	R. L Payne, Jr.

Thirty-Third Annual Meeting—Newbern, May, 1886.

Jos. Graham.	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	W. C. Murphy.	R. L. Payne, Jr.

Thirty-Fourth Annual Meeting—Charlotte, April, 1887.

H. T. Bahnson.	G. G. Smith, J. L Nicholson, C. M. Poole, H. B. Fergusou.	W. C. Murphy.	R. J. Payne, Jr.

Thirty-Fifth Annual Meeting—Fayetteville, May, 1888.

T. D. Haigh.	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker.	C. M Poole.

Thirty-Sixth Annual Meeting—Elizabeth City, April, 1889.

W. T. Ennett.	W. J. Jones, S. W. Stevenson, Geo. W. Long.	J. M. Baker.	C. M. Poole.

Thirty-Seventh Annual Meeting—Oxford, May, 1890.

Geo. G. Thomas.	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays.	C. M. Poole.

Thirty-Eighth Annual Meeting—Asheville, May, 1891.

R. H. Lewis.	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays.	C. M. Poole.

Thirty-Ninth Annual Meeting—Wilmington, May, 1892.

W. T. Cheatham.	T. S. Burbank, J. W. Long. W. H. H. Cobb, W. D. Hilliard.	J. M. Hays.	C. M. Poole.

Fortieth Annual Meeting—Raleigh, May, 1893,

J. W. McNeill.	W. C. Galloway, H. H. Harris, J. M. Hadley, Thos. Hill.	R. D. Jewett.	M. P. Perry.

Forty-First Annual Meeting—Greensboro, May, 1894.

W. H. H. Cobb.	J. A Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett.	M. P. Perry.

OFFICERS AND COMMITTEES.

SESSION 1894.

PRESIDENT.

W. H. H. Cobb, M. D., Goldsboro.

VICE-PRESIDENTS.

1st. J. A. Hodges, M. D., Wilmington.
2nd. R. W. Tate, M. D., Greensboro.
3rd. Willis Alston, M D., Littleton.
4th. M. H. Fletcher, M, D., Asheville.

CORRESPONDING AND RECORDING SECRETARY.

Robert D. Jewett, M. D., Wilmington.

TREASURER.

M. P. Perry, M. D., Macon.

ORATOR.

E. G. Moore, M. D., Elm City.

ESSAYIST.

J. Howell Way, M. D., Waynesville.

BOARD OF CENSORS.

W. C. McDuffie, M. D, Fayetteville.
Thos. E. Anderson, M. D., Statesville.
H. H. Harris, M. D., Wake Forest.

PUBLICATION.

Geo. G. Thomas, M. D., Wilmington.
Thos. S. Burbank, M. D., Wilmington.
W. J. Love, M. D., Wilmington.
Robt. D. Jewett, M. D., Wilmington.

NECROLOGY.

J. A. Hodges, M. D., Wilmington,
W. C. Galloway, M. D., Winston.
W. J. Jones, M. D., Goldsboro.

CREDENTIALS.

J. M. Hays, M. D., Greensboro.
J. H. Way, M. D., Waynesville.
Albert Anderson, M. D., Wilson.

FINANCE.

W. P. Beall, M. D., Greensboro.
O. D. King, M. D., Albemarle.
W. H. Lilly, M. D., Concord.

MINUTES

——OF THE——

FORTY-FIRST ANNUAL SESSION

—OF THE—

MEDICAL SOCIETY OF NORTH CAROLINA.

TUESDAY, MAY 15TH.—FIRST DAY.—MORNING SESSION.

The Forty-First Annual Meeting of the Medical Society of the State of North Carolina was convened in the city of Greensboro on the 15th of May, 1894, in the Court House.

The Society was called to order at 10 o'clock by Dr. W. P. Beall, Chairman of the Local Committee of Arrangements, Dr. W. H. H. Cobb, of Goldsboro, the President, occupying the Chair, and Dr. Robert D. Jewett, of Wilmington, being Secretary.

Prayer was offered by the Rev. Dr. J. H. Smith, Pastor of the First Presbyterian Church.

Col. R. M. Douglas delivered the following

ADDRESS OF WELCOME

Mr. President and Gentlemen of the Medical Society:

I trust you will not judge of the warmth of your welcome by my feeble words. Trained in the dry and concise language of the law, and lacking equally the eloquence of the orator, the imagination of the poet and the flowers of the rhetorician, I cannot but feel my incapacity for such an occasion. Feeling highly honored by the invitation to address you, but not knowing on what subject to speak, as usual I sought the advice of my family physician. I first suggested a history of medical science, beginning with a panegyric upon æsculapius He diplomatically informed me that he had several times heard of æsculapius, and thought the Medical Society of North Carolina knew more about medical science than I did. He further gently intimated that, in legal parlance, "time was not of the essence of the contract;" and that I might make my address just as short as I pleased. My next idea was to astonish you with my learning, as evidenced by words of classical origin and sesquipedalian

length. In this mood, I happened to open the proceedings of your 39th annual session; when my eye lighted upon these words on page 23: "Learnedly discourse on le petit mal intellectuel, the movements en manege and the prodromal pre-epileptic syncopic vertigenous paroxisms; emphasize the importance of micro-organisms, autogenetic and heterogenetic, and bacteriological cultures, pathogenic and saprophytic, etc., etc."

I closed the book in despair. I had read Tongiorgi and Liberatori on logic, metaphysics and ethics, including ontology, cosmology and psychology. I had afterwards studied law, and had become somewhat acquainted with its most ponderous phrases; but in the wildest flight of my imagination I had never dreamed of words like these. What was left for me? Nothing, save to welcome you in the plainest, but sincerest of English. You are indeed welcome. No body of men would be more welcome to us, and none stand higher in our estimation and esteem. The fact that you are members in good standing of the Medical Society of North Carolina is a sufficient introduction to us, and will be so received wherever your society is known. Next to the priest comes the family physician. Standing at the cradle and the bier, he welcomes the coming, and soothes the parting spirit. His character and attainments should correspond with the exalted dignity and tremendous responsibilities of his position. Natural ability he must have, joined with a sincere devotion to his profession, and a full realization of its requirements. He cannot expect to reach its head, as may happen in other professions, by one brilliant and heroic effort; but must work his way upward "through long days of labor and nights devoid of ease." Learned but not pedantic, progressive but not experimental, prudent but not timid, cool but not indifferent, he should unite the tenderest sympathy of a woman with the utmost strength of manhood. The warmest of human sympathies should spring direct from the heart, but never reach to the nerves. His should be a gentle and soothing hand, whose velvet touch has an iron grasp. Necessarily knowing many family matters that the world should not know, his professional secrets should be secured in his own breast with the lock of conscience and the key of honor. Of course his instincts would make him a gentleman; and beneath all and supporting all, should rest the solid foundation of a pure Christian character. This is no mere fancy sketch. Many such have I known among your noble profession, and while I do not wish to be invidious, I cannot refrain from saying that, as I utter these words, rises the honored shade of Burke Haywood.

There is one tendency of your profession which meets the unqualified approval of all thinking people; and that is towards preventive treatment. I cannot explain to you the difference between aseptic, antiseptic and other septic remedies, as you know them and I do not; but the principle is well enunciated in the old adage of our grandmothers that "An ounce of preventive is worth a pound of cure." This leads me to commend in the highest terms the services

of your State Board of Health, whose faithful, zealous and intelligent efforts are worthy of the fostering care of the Legislature. and the earnest co-operation of all classes of our people In welcoming you to Greensboro it is perhaps proper to add that we think well of our beautiful city. While not occupying the exact geographical position of the garden of Eden, we are undoubtedly on the same isothermal line. We have all to make life pleasant; and think we can show you much of interest except in the way of sickness. Nobody wants to get sick or die here. Why should anyone wish to leave Greensboro? We have the purest of water and the freshest of air, the best of doctors and the loveliest of women. With such surrounding it is difficult for us to shuffle off this mortal coil. The Greensboro woman, in health fresh and sparkling as the dew drop that nestles on the rose, is in sickness tender, patient and loving. Her smile would win back the weary sufferer almost from the "gates ajar," while her tear would stay the fatal hand of Azrael himself.

We will endeavor to make your visit here a pleasant one. We will listen to your eloquent orations, and applaud your well-rounded periods; and the further you get beyond our comprehension the louder will be our applause. When your sittings are over, we shall take pleasure in showing you the sights of our town. We have our mineral springs; our graded schools; our churches; our Agricultural and Mechanical College for the colored race; Bennett College for the same race; our old and excellent Greensboro Female College; and last but not least, our State Normal School, the pride of our hearts as it contains the flower of our homes. Six miles northwest of us lies the historic battle field of Guilford Court House, the birthplace of patriotism as it was the deathbed of valor; while in our northern suburb rises a magnificent group of ornamental statuary known as the Steel and Iron Furnace.

In conclusion I can only say welcome! thrice welcome! to our city and to our homes; and may you be as much pleased with your visit as we feel honored at your coming.

In behalf of the Society, Dr. J. B. Powers, of Wake Forest, made the following

RESPONSE:

We have heard the Address of Welcome with an evident degree of enjoyment and pleasure. It gave off no uncertain sound. We are welcome—we feel it, and the Medical Society of North Carolina extends a cordial greeting, a happy salutation, and a species of congratulation to the people of Greensboro.

To the princely reception we have met and the royal welcome we have received, every heart among us tenders a willing, sincere and cheerful response. As the fingers of the musician sweep over the strings of the lyre and call forth notes of sweetest music, so our hearts yield up tones of pleasantest joy at the touch of welcome from the cultivated and hospitable people who have called us

together here. In obedience to your invitation we have come from every quarter and section of our State till we have rolled up a column 200 strong or more to greet you here as well as to discharge a duty to medical science.

The spirit of welcome has loomed up to a conspicious height here in Greensboro—building up as the smoke from so many genial altars, and the sheperds of medicine have seen it from afar and they have come from a distance from the east, yes, from the west, north and south, to lay their trophies of appreciation and good will at the feet of a courteous and generous people to worship with them at their shrines, bless the incense which arises from their altars, and, if need be, contribute fuel to the fires burning thereon.

We have come with a keen sense of appreciation of your hospitality, and with a proper relish for the freedom of your town and the liberties you have extended to us as a profession. As you have opened your gates to receive us and bade us enter into your joys and pleasures with you, so we as your guests will endeavor to plant pleasant memories with you and quicken and tincture you as a peculiar people with special sympathies toward us and affectionate recollection of the Forty-First Medical Convention.

You see the long, tall, lank, lean fellows around here with hollow eyes and pale cheeks. They have been travelling from the mountains to the sea shore on meagre supplies visiting the sick. Now they have laid down everything, left business and home, and come up to Greensboro to get a breath of fresh air, behold the goodness of your people, the beauties of nature and freedom of other men.

But, within their tired and guant forms breath spirits for which heaven has a respect, for some of them have entered homes where ministers have never been —where the comforts and luxuries of life are unknown Some of them have been the vehicles for the conveyance of spiritual truth, all of them have been the carriers of light and information on all the important questions of the day, and disseminated knowledge among the people wherever they have gone. This is an unappreciated truth, unknown to the rest of the world so busy with its own affairs, but it furnishes the foundation stone of the great central column in that towering mausoleum erected in men's hearts in honor of the medical profession, and it is around this that the vine coils and climbs which bears the fruit and the flowers now attracting the intense gaze of an admiring world.

What of power among men is more to be desired than that symbolized by the majestic and magnetic presence of the trusted physician in the sick chamber! Like the magnet to the iron filings, he draws the people to him --they lodge their confidence with him, their secrets with him, and he becomes an instrument of power in their midst, not only able to relieve distress and heal the sick, but also to stamp out wrong and encourage and stimulate right living, and it is upon this basis that the pyramid of strength rests as upon a rock which the people are ready to embellish with wreathes of flowers. Circling around

its apex in glowing tints and red colors is the additional prospective glory – the power to prevent human ills.

Preventive medicine like a luminous sun, is just peering above our eastern horizon and it is to grow in magnitude and splendor as it ascends towards the meridian and sheds down upon the whole people its genial rays of light and blessings, and back from them will go the vociferous shout of applause to those who have borne the heat and burden of the day in the accomplishment of the one grand end toward which we have been slowly marching—freedom from disease. These are some of the qualifications and aspirations of your visitors. Whom are we visiting? Back a century into the past is a lurid sky, and the presence of the descendents of the heroes of the Battle of Guilford Court House is revealed. Upon this site these established a little colony, and in honor of the distinguished leader Nathaniel Green, named it Greensboro. So that we find ourselves upon hallowed ground and among a peculiar people. The Battle of Guilford Court House was second to none in the achievement of the independence of our States Victory here enabled Green to hang upon the wing of Cornwallis till the arms of the crown were crushed at Yorktown Defeat begun here was finished there Victory here was the pivot upon which the fortune of our revolutionary fathers turned. From this brilliant origin the little plant grew to the dignity of near 10,000 inhabitants, became conspicuous as a great and powerful railroad center and distinguished for its schools and factories It is beautifully situated in the central portion of our State, and is surrounded by many hallowed associations and illustrious memories.

Here we might erect a water tower, great in height, and climb to its summit, and looking to the west over hills and dales to crags and peaks, to the east over fertile plains to the snow crested waves of the sea, and to the north over beautiful undulations and carpets of green covering the face of nature, and to the south over sun lit climes, the profusion of flowers, growing vineyards and extensive harvests, in North Carolina—and from every point of view behold a people prosperous, contented, and happy, and more peaceful than the population of any other part of the globe during these troublesome and turbulent times, and shining out of the midst of it all with resplendent glory is the peculiar genius of our people underlaid with a deep toned patriotism, with an invincible spirit of liberty, and healthy religious sentiment.

There is no place in all this great country of ours where the safety of our institutions rests upon a firmer basis, where patriotic emotions stir the people to healthier pursuits, where the spirit of liberty, equity, and fairness toward all classes of men are more thoroughly grounded than upon North Carolina soil.

We are not the first to claim honors; we are not the first to herald our fame over the earth; but we were the first to declare for the independence of our States, to furnish the first victim and more troops and better troops in the late war of our rebellion, and we are ready to be first to lead in any cause which

shall bear the best fruit for our State and nation. So that the seeds must germinate in our midst, and let the forces be generated here, to resist the tidal wave of paternalism, communism and anarchy developing in so many commingled and occult forms and deceptive methods destined to sweep over our fair land. Surrounded by a native conservatism, thrilled and actuated by a superior heroism, having inherited strong ancestral traits from our revolutionary fathers, having descended from a people distinguished for broad and liberal commonsense, our population so far from admixture of foreign blood have become the nursery of patriotism and the people of North Carolina may becomingly arise and hurl themselves as an immense battering ram against the walls of these wild speculations abroad in the land, and break them down and exterminate them, because they develop parasites not citizens and patriots, because they tend to subvert and undermine our institutions and not protect them.

Let us encourage thrift and progress along every line, but let it be grounded on the basis of self-help and not public help. Away with Coxey and everything that smacks of him. Let us be a great people—a patriotic people, but let us be sure of our foundation – let us build upon the rock of self help. The atmosphere of Greensboro smells of patriotism, of the instincts of our fathers, and may a great blessing rest upon her people and the labors of its founders forever.

The President, W. H H. Cobb, M.D., of Goldsboro, now called the Society to order for the transaction of business

A Committee on Credentials consisting of Dr. J. M. Hays, Dr J. Howell Way and Dr. Anderson, was appointed.

Dr. W. P. Beall, Dr. O. D. King and Dr. W. H. Lilly, were appointed as the Committee on Finance.

The Society now listened to the reading of the President's Message. (See Appendix.)

On motion, the Message was referred to the Publication Committee and a committee of three, consisting of Drs. R. L. Payne, Jr., E. R. Michaux and D. A. Stanton, was appointed to report on the suggestions it contained.

The President suggested that visitors from other states, instead of being introduced by members of the Society, should be referred to the Committee on Credentials in order that the committee could properly report their names to the Society. He also suggested that the reading of all papers be limited to twenty minutes, and all discussions, to five minutes for each speaker, with the privilege of the floor only once on the same subject, unless by unanimous consent of the Society.

The suggestions of the President were adopted.

Dr. J. B. Powers read his report as chairman of the Section on Pathology. It was entitled "From Bacteria to Immunity." (See Appendix.)

The Committee on Credentials reported the presence of Drs. J. J. Chisolm,

Thomas E. Moore and Randolph Winslow, and suggested that the courtesies of the floor be extended to them. They were invited to participate in the discussions

Dr. Powers' paper was referred to the Committee on Publication.

Dr. Thos. M. Riddick read a paper, entitled "A Pathological View of some of the Acute Specific Fevers."

The paper was referred to the Committee on Publication.

Dr. J R. Irwin read a paper on "Ptomainic Intoxication and Gastro-intestinal Antisepsis "

The Committee appointed at the last meeting to attend to having a portrait painted of the late Dr. Thomas F. Wood, reported through Dr. R. H. Lewis, that the work has been preformed and presented the portrait, which was from the brush of Mr. W. G. Randall, of Washington, D. C. The report was adopted and the same committee was authorized to formally present the portrait to the State Library.

The Local Committee of arrangements reported that they had arranged for the Annual Oration to be deliveded at the State Normal School, Wednesday Evening, to be followed by an entertainment to be presented by the pupils of that institution.

On motion, it was decided that 9 A. M. should be the time of assembling for the morning session, 3:30 for the afternoon session and 8:30 for the evening session.

The Society adjourned to meet at three.

FIRST DAY.—AFTERNOON SESSION.

Society called to order by the President at 3:30 o'clock.

Report of Section on Antomy and Surgery was called for, and read by the Chairman, Dr. R. H. Stancell, Jr.

J. M. Hays, M.D., read a paper on "Ophthalmology."

J. E. Ashcraft, M.D., read a paper on "Syphilis."

Dr. Lewis read a voluntary paper, entitled "A Clinical Note on Glaucoma "

Dr. Chisolm congratulated the author upon the instructiveness of his paper and stated that in cases f severe pains in the head the trouble was almost always due, in cases of older women, to the eye, and not, as generally supposed, to neuralgic troubles. The disease occurs much more often in females than in males, and always in old people

Dr. Booth read a report of two cases of surgery that had come under his observation

Dr. S D. Booth made a verbal report of a case that had come under his observation. He was sent for to see a baby who had an abscess in the iliac region. The probe was introduced into abscess and struck an obstruction. It broke through this and in about an inch struck another. It broke through

again, and then a great quantity of gas escaped. It passed in about three inches further and struck a firm obstruction. It was evidently now in the intestine and the probe was then bent so that it could follow the direction of the bowel. After they reached the main cavity of the bowel and no more obstructions were met with they let the baby alone. It is probable that the obstructions might have lasted all the way up the bowels. No post mortem examination was allowed.

Dr. O'Hagan exhibited a piece of iron from the breech of an old gun and told this instance relating to it. About four years ago a colored man with the desire of making more noise than anyone else, filled a rifle full of powder and exploded it. After the resulting excitement subsided, a wound was found on the bridge of the nose, doing some injury to the frontal bones. The man remained in this unsatisfactory condition for about four years. Three months ago the man was seen by the doctor who probed for the cause of the wound, and felt the hard substance. With a pair of forceps this piece of iron was drawn out after some vigorous pulling. It is about two and one-half inches long and weighs about 400 grains. During the four years that the iron had been in the head of the negro, he had been intellectually and physically as strong as before. He had experienced little or no inconvenience, except some discharge at the point of injury. The wound had healed after little trouble. The piece of iron must have remained between the hemispheres of the brain during these four years.

Dr. Chisolm said he did not think that the iron went into the brain at all.

Dr Bahnson reported the case of a woman who swept a gun cap into the fire. It exploded and lodged in her left eye. She suffered intense pain and the eye became inflamed and swollen. The lids lost their transparency and were apparently of a grayish color. There was considerable doubt as to the propriety of removing an eye in such a state of inflammation. In passing her, he accidently touched her foot, and noticed a shudder, a sudden drawing of the breath. No attention was paid to that, but a few minutes the wind from his movements causes a repetition of his symptom. It was all over in a second. He realized it to be the dread symptom of that horrible disease, tetanus. After a hasty consultation it was decided to remove the eye. The operation was performed without much trouble, and the woman made a fine recovery.

The Society adjourned to meet at 8:30, in the evening.

FIRST DAY.—EVENING SESSION.

The Society was called to order by the President at 8:30 o'clock.

The Annual Essay was read by J. Howell Way, M.D.

The report of the Section on Physiology and Materia-Medica was called for, and read by the Chairman, J. P. Fearrington, M.D.

The Secretary read a letter of regret from Dr. A. B. Pierce, for not being able to attend the meeting of the Society.

The Secretary read letters of resignation from Drs Wimberly, Jr., M. R. Braswell, F. J. Thorpe, J. C. Braswell and J. J. Mann.

On motion, the resignations of the first four, whose accounts were balanced on the treasurer's books, were accepted, and that of Dr. Mann was accepted when his dues shall be paid.

The Secretary was instructed to so notify them

A communication from Dr. C. Daligny was read by the Secretary. He stated his reasons for non payment of dues.

On motion, he was excused from the payment, and the Secretary was instructed to notify him.

In the absence of Dr. E. C. Laird, Chairman of the Section on Therapeutics and Practice of Medicine, the paper was referred to the Committee on Publication.

At the request of the American Medical Association, a committee was appointed to consider the advisability of changing the Code of Ethics. The committee consisted of Drs J P. Munroe, I. W. Faison and W. T. Cheatham.

At the request of the Society Dr. Karl VonRuck read his paper on "How should the Physician treat Consumption at home?"

It was moved that the election to fill vacancies on the Board of Medical Examiners be made a special order for 10 o'clock the next day (Carried.)

The Society adjourned.

SECOND DAY.—MORNING SESSION.

The report of the Committee on Obituaries was called for. On motion, the report was referred to the Committee on Publication, to be published in the transactions of the Society.

The Committee on Nominations was appointed by the President. It consisted of Drs. Oscar McMullen, R. W. Tate, R. L. Gibbon, W. D. Pemberton and J. H. Way.

The President announced that the time had arrived for the election of members to fill the two vacancies on the Board of Medical Examiners. Drs. McMullen and Laughinghouse were appointed tellers.

Nominations were declared in order.

Drs. J. R. Irwin, of Croft, J. M. Hays and W. P. Beall, of Greensboro, T. S. Burbank, of Wilmington, and I. W. Faison, of Charlotte, were nominated.

Dr. Battle nominated Dr. J. Howell Way, of Waynesville, but on request of Dr. Way his name was withdrawn.

Drs. Parris and Powers were appointed additional tellers.

The following was the result of the ballot: Total number of votes cast 168; number of votes necessary for election 85.

Dr. Burbank received 106, Dr. Hays 79, Dr. Beall 67, Dr. Faison 42 and Dr. Irwin 9.

Dr. Burbank, having received a majority of all the votes cast, was declared duly elected a member of the Board of Medical Examiners, for a term of six years.

None of the other nominees having received a majority of the votes cast, it was declared necessary to ballot again for the member to fill the other vacancy on the Board.

Dr. Faison withdrew his name.

The result of the second ballot was as follows: Total number of votes cast 156; number necessary for election 79. Dr. Hays received 80, Dr. Beall 56 and Dr. Irwin 20.

Dr. Hays, having received a majority of the votes cast, was declared duly elected a member of the Board of Medical Examiners, for a term of six years.

The following report of the Committee on the President's Message was offered by Dr. R. L. Payne, Jr.

The Committee appointed to consider the President's Message, respectfully report as follows:

First.—The thanks of the North Carolina Medical Society are due Dr. Cobb for the immense amount of work he has accomplished, looking to the upbuilding of our Society, the reclaiming of delinquent members, and the more efficient working of the Sections of the Society.

Second.—We would recommend the suggestion of our President that each year a copy of the Code of Ethics and our Constitution and By-laws be printed with the Transactions of this Society.

Third.—We would recommend to this Society the careful consideration of the suggestion, that a permanent Secretary and Librarian be elected to take charge of our records, exchanges and such books and specimens as may from time to time be donated to this Society.

Respectfully submitted,

R. L. PAYNE, Jr.,
D. A. STANTON,
E. R. MICHAUX.

The President stated the time had arrived for the Conjoint Session with the State Board of Health.

The Society adjourned to meet after the meeting of the State Board of Health.

THE CONJOINT SESSION

was called to order by Dr. H. T. Bahnson, President of the Board of Health.

Dr. Bahnson in a few words introduced Dr. Kinyoun, representative from the United States Marine Hospital Service, to the Conjoint Session and invited him to participate in the proceedings of the meeting.

Dr. Kinyoun thanked the Society and Board for their courtesy.

The first business in order was the reading of the report of the Secretary of the State Board of Health. (See Appendix.)

On motion of Dr. O'Hagan, a vote of thanks was rendered to the Secretary

for his able report, and his zealous interest in the work and success of the State Board of Health.

After a discussion of some of the points alluded to in the Secretary's report, the Conjoint Session adjourned and the Society was again called to order.

In the Section on Medical Jurisprudence and State Medicine, the Chairman, Dr. A. Cheatham read a paper entitled "The Plea of Insanity to Evade the Law."

It was referred to the Publication Committee.

At the suggestion of Dr. Lewis, he was instructed to have the name of Dr. Wood put upon the portrait to be presented to the State Library.

The Society adjourned to meet at 3 o'clock

SECOND DAY—AFTERNOON SESSION.

The Society was called to order at 3 o'clock.

The President announced that the first business in order was the election of officers of the Society for the ensuing year.

He appointed Drs. Stancell, Poole, Faison and Hadley as tellers.

Nominations for President were declared in order.

Dr. Poole placed in nomination Dr. T. E Anderson, of Statesville.

Dr. Stancell placed in nomination Dr. J. H. Tucker, of Henderson.

The following was the result of the ballot: Total number of votes cast 103, of which Dr. Tucker received 63, Dr. Anderson 39, Scattering 1.

Dr. J H. Tucker, of Henderson was declared duly elected President of the Society for the next year.

Nominations for Vice-Presidents were declared in order.

It was moved that the four Vice-Presidents be balloted for at the same time, and that they take rank according to the number of votes received.

The following were placed in nomination:

Dr. J. Howell Way, Waynesville; Dr. F. R. Harris, Henderson; Dr. O. McMullen, Elizabeth City; Drs. C. A. Meisenheimer and I. W. Faison, Charlotte, and Dr W. H. Harrell of Williamston.

The result of the ballot was as follows:

Dr. Way received 81 votes, Dr. Harrell 73, Dr. McMullen 59, Dr. Meisenheimer 56, Dr. Harris 44, Dr. Faison 13, Scattering 6.

Dr Way was declared duly elected First Vice-President, Dr. Harrell, Second Vice-President. Dr. McMullen, Third Vice-President and Dr. Meisenheimer, Fourth Vice-President.

Dr. Levy, of the State Medical Society of Virginia, was introduced by Dr. Hodges, and extended the courtesies of the floor.

Nominations for Secretary were declared in order.

Dr. R. D. Jewett, of Wilmington was nominated.

No other nominations being made, it was moved that Dr. Poole be requested to cast the vote for the Society for Dr. Jewett and he was declared elected.

Nominations for Treasurer being declared in order, Dr. Perry was nominated, and Dr. Poole was requested to cast the vote for the Society for him.

Dr. Perry was declared unanimously elected Treasurer of the Society.

The report of the Nominating Committee was called for, but the Committee not being ready to report, more time was extended to it.

Dr. Simon Baruch, of New York, was extended the priveleges and courtesies of the floor, and invited to take part in the discussions

Dr. R. L. Gibbon, Leader in the Annual Discussion, read a paper on "Hydrotherapy."

Dr. Baruch read a paper on the same subject.

The Committee on the Revision of the Code of Ethics made the following report, which was accepted and adopted.

The Committee appointed to consider the advisability of revising the Code of Ethics, recommend that the Secretary be instructed to reply to the communication of the Secretary of the American Medical Association, that this Society does not deem it wise to make any changes in the Code of Ethics.

Respectfully submitted,

J. P. MUNROE,
W. T. CHEATHAM,
I. W. FAISON.

J. A. Hodges, M.D., read a paper entitled, "The Value of Electricity as a Therapeutic Agent."

The following report of the Board of Censors was offered by Dr. Booth, and after some discussion, was accepted and adopted.

We, the Board of Censors of the North Carolina Medical Society, submit the following as our report in the case of Dr. J. T. Strickland, charged with unprofessional conduct towards his Medical bretheren, and want of integrity as a citizen. After exhaustively and carefully considering all the evidence submitted, we, your Board, feel that consistent with our duty we can do nothing less than recommend that his name be dropped from our list.

Signed, THOS. E. ANDERSON,
S D. BOOTH,
H. H. HARRIS.

The Society adjourned to meet at 8:30 o'clock at the State Normal School.

SECOND DAY.—EVENING SESSION.

The Society met at the State Normal and Industrial School, and was called to order at 8:30 o'clock.

After a few words of welcome from Dr. C D. McIver, the President of the Institution, the Orator of the occasion, Dr. E. G. Moore was introduced by the President of the Society, and in the presence of the students of the School and many of the citizens of Greensboro, delivered the Annual Oration.

On motion, the address was referred to the Committee on Publication.

After adjournment the Society was entertained by the students who rendered, in most excellent style, a play entitled "The Chronothanatoletron."

THIRD DAY.—MORNING SESSION.

The Society was called to order at 9 o'clock.

The Committee on Nominations made the following report which was adopted:

Annual Orator.—Dr. W. P. Mercer.

Essayist.—Dr. R. H. Stancell, Jr.

Obituary Committee.—Drs R. L Payne, R. H. Lewis, Thos. M. Riddick.

Delegates to the American Medical Association.—Drs Carl von Ruck, Thos. E. Anderson, I. W. Faison, T. S. McMullan, W. J. H. Bellamy, Albert Anderson, G. G. Thomas, W. J. Lumsden, S. L. Montgomery, W. P. Beall, J. B. Powers, S. W. Battle.

Delegates to the Southern Surgical and Gynæcological Association.—Drs. J M. Hays, David Tayloe, W. A. Graham

Delegates to the Virginia Medical Society.—Drs. R. H. Whitehead, Joseph Hill, Chas. Duffy, J W. Walton.

Delegates to the South Carolina Medical Association.—Drs. R. S. Young, W. H. Wilson, M. C. Hunter, W. W. Pharr.

Delegates to the American Public Health Association.—Drs. R. H. Lewis, H. T. Bahnson, W. J. Jones.

Delegates to the North Carolina Pharmaceutical Association.—Drs. H. B. Weaver, Chas. Hilliard, Charles Jordan, J. A. Burroughs, J. P. Fearrington.

Delegates to the American Pharmaceutical Association.—Drs. S W. Battle, W. H. H. Cobb, Jno. Whitehead.

On request of Dr. Anderson, Dr. Hill was appointed to prepare an elaborate paper to be read at the next meeting, on The Indigenous Plants of North Carolina.

A resolution to suspend the order of business and select the time and place for the next meeting of the Society was laid on the table.

The Secretary read letters of regret from Drs. Willis Alston and J. G. Ramsay.

The following letter from Dr. A. B. Pierce was read:

WELDON, N. C., May 15th, 1894

After writing to the Secretary of the Society of my inability to attend the meeting, the thought occurred to me that I would like to mingle my sympathies with the Society in their Memorial services to be paid to the memory of Drs Pittman and Summerrell, both of them the associates of my early youth, and schoolboy days. Our early associations ripened into friendship, which lasted while they were permitted to stay on earth, and I learned to love them not only for their sterling qualities both of head and heart, but to reverence them for their achievements in medical science.

They were gentlemen of the old school, and ranked as some of natures noblemen. Several times in the practice of my profession, it has been my good fortune, to share their wise counsels, and especially of Dr. Pittman. whose varied experience gave him opportunities of communicating knowledge known to but few of his comrades

I could not let this opportunity pass, without saying a word, to the memory of my departed friends My seniors by a few years, they have passed over the river just before me, but I fear I shall soon follow and meet them on the other shore. I wou'd write more, but I feel too feeble to say more at present.

A. B PIERCE.

Dr. Annie L. Alexander read a paper on Physical Development and Training of Girls, which was referred to the Committee on Publication.

The next paper was "Prevention and Cure of Perineal Lacerations" by Dr. W. E. Fitch.

It was referred to the Committee on Publication.

The next paper, "Hegar's Sign of Pregnancy," was read by Dr. J W. Long.

On motion, Dr. Hodges read a paper prepared by Dr. Loftin, reporting a case of Compound, Comminuted Fracture of the Skull.

The Committee on Finance made the following report through Dr. O. D. King.

Your Committee on Finance having examined the books and accounts of the Treasurer, find them correct as follows:

Balance on hand May 16th, 1894	$1,443.08.
Amount paid out per vouchers to date,	822.45.
Balance on hand,	620.63.

The Committee recommend an assessment $2.00 per capita for the ensuing year, and further recommend that the salary for the Secretary and Treasurer, for this ensuing year be the same as it now is.

S. L. MONTGOMERY,
W. P. BEALL,
OGDEN D. KING.
Committee on Finance.

The report was accepted and adopted

The reports of the committees appointed to suggest some suitable action on the part of the Society for the perpetuation of the memory of Drs. S. S. Satchwell and Charles Duffy, were called for. The members of the committees were absent.

The report of the Committee on the President's Message was taken up.

The Secretary thought that it would be an advisable thing for the Society to have a permanent secretary or librarian. He advocated the establishment of that office, that the valuable exchanges from other societies might be preserved and used by members as references.

It was moved that the President should appoint an officer corresponding to secretary and librarian, to take charge of any books or periodicals as may be sent to the North Carolina Medical Society, and preserve them.

The Secretary stated that the establishment of such an office would involve a change in the constitution, and that it was not in the province of the President to appoint such an officer.

On motion a committee of three consisting of Drs. Bahnson, Way and J. S. McMullen was appointed to consider the matter.

There being no voluntary papers, verbal reports of cases were called for.

Dr. Long exhibited some gall stones, and related the incidents of the case. They were taken from the gall bladder of a lady forty-one years of age and weighing 250 pounds, the mother of ten children and in good health. The woman complained of colic seated in the stomach. One physician had pronounced it appendicitis. On opening the abdomen, it was found that the gall bladder was distended to such a degree that it displaced the neighboring viscera. An incision was made into the gall bladder and it was emptied of its fluid and of the stones. By actual count, it was found that 196 stones had been removed. An anastomosis was then established between the gall bladder and the duodenum by means of the Murphy Button, which the reporter exhibited, with the method of its application.

Dr. T. S. McMullen reported two cases upon which he had operated with success. One was an abdominal section for the removal of the uterine appendages from a woman, who had been bedridden for many years. Now she is well and suffers no pain. The other was an operation of trephining for traumatic epilepsy in a young man. The last time he heard from the man, which was eighteen months after the operation, he had not had a return of the epileptic attacks.

Dr. Jones reported the case of a young girl. She had enjoyed fairly good health up to that time, having had a few attacks of colic of short duration and relieved by simple means. But in this attack the pain was very severe. The case was diagnosed to be obstruction. An operation was strongly advised immediately, but refused by the family until two or three days later. The operation was then performed, but with little hope of success The entire jejunum and ileum were very much distended. With slight effort the point of obstruction was detected and relieved. The patient came from under the anaesthetic very nicely, and a day or two afterwards was doing well. The operation was performed on Saturday. On Tuesday morning the news came of her death.

He reported another case of a negro woman of about 28 years of age. Pregnancy was diagnosed. She had not menstruated for about 18 months. On opening the abdominal cavity, there was found to be a sub-peritoneal fibroid. The attachments to the uterus were of such a nature that it drew the fundus down, and the fundus represented the head of the child, while the mass of the fibroid had been taken for the body of the child. The tumor was removed.

The woman's progress was very good for several days, but she was half-witted and did not follow the instructions of the physicians and consequently died.

The following case was reported by Dr Sykes. It was the case of a boy who had cut himself in Scarpa's triangle. He bled very profusely, but the hemorrhage was stopped by pressure applied by the boy's parents. The doctor was not able to determine the exact extent of the injury. He put the child to bed and left him resting quietly. The next day the hemorrhage returned and he was sent for. He invited another physician to go with him and went to the house with the determination of cutting down and finding what was the source of hemorrhage. After examination, as the hemorrhage had been stopped in the same manner as at first, his colleague advised against the operation, and he went away without peforming it. A week later he was sent for again, for the hemorrhage had returned. This time the other physicians agreed with him that it was time for something to be done It was found that the femoral artery had been cut. The artery was ligated and all precautions to prevent gangrene were taken, and the boy recovered. Attention was called to the prompt treatment required in all such cases.

Dr. Kent told of the case of a man who had received several wounds, one very severe one on the side of the neck. When the Doctor reached the man, he found his hands cold and pulseless, and on examination his first impulse was to give him up for dead. But he thought as long as there is life, it is the physician's place to make effort. After sewing up the wounds and putting the patient to bed, he remained with him several hours. The patient gained consciousness and expressed himself as very comfortable. The case went smoothly from Weduesday to Sunday afternoon, when the man in making an effort to change his position, caused the hemorrhage from the wound in neck to start afresh. They succeeded in checking the hemorrhage and the patient began to regain his strength again. In about three weeks the wound had healed nicely. Then he noticed an enlargement at the place of the wound, and discovered that it was a traumatic aneurism. In a few days the tumor ruptured and the man bled to death. Dr. Sykes asked if he was justified in not performing an operation at the first, when the man was so nearly lifeless from the loss of blood.

Dr. Hodges recommended the Marcy buried continuous suture for wounds of the face and abdomen, and gave a description of it.

Dr. Schenck added his testimony to that of Dr. Hodges. He had seen this suture used on both face and neck, with good results in causing a minimum of scar.

Dr. Long demonstrated the technique of this suture on the blackboard. He recommended it because of its not being so apt to cause stitch-hole abscesses.

Dr. Kent reported a case which occured in his early practice. A large blood vessel in the neck of the man was wounded, but on account of the haste the vessel was not recognized. By catching the cut with forceps the hemor-

rhage was controlled. With a needle a ligature was carried directly through the lumen of the vessel and tied. The large wound and several smaller ones were stitched up and the bleeding entirely stopped. With the use of stimulants the man was restored to conciousness. The next morning Dr. A. Jobe of Tennessee was called in for consultation as there might be some legal question as to the treatment, and he desired the opinion of an older surgeon. He said that the case had been properly treated, and the man had better be let alone. The suture with which the vessel was tied worked its way out with only a few drops of hemorrhage. The man recovered.

Dr. Booth moved that the thanks of the Society should be extended to Dr. McIver and the young ladies for the pleasant entertainment given the Society on Wednesday evening.

It was carried unanimously.

Dr. Jones suggested that a record of surgical work done by members should be sent to Dr. Munroe, as he is getting a record of the surgical work in the State.

The Editor of the North Carolina Medical Journal announced that the prize offered by the Journal for the best History of Surgery in North Carolina would be increased to $50.00 for the next meeting.

The Society adjourned to meet at 2:30 P. M.

THIRD DAY.—AFTERNOON SESSION.

The first order of business was the selection of time and place of the next meeting.

The following cities were placed in nomination: Goldsboro, Asheville, Charlotte and Morehead City.

On motion, the vote was taken by ballot, and Goldsboro getting the highest number of votes was chosen.

The next thing in order was the selection of the time of the next meeting.

By request of Dr. Anderson, Dr. Hays offered a resolution that the time of meeting be changed from May to October.

After some discussion it was laid on the table, and on motion, the second Tuesday in May was selected as the time for the next meeting.

The hour having arrived for the installation of officers, Drs. Hays and Booth were appointed to escort the newly elected President to the rostrum.

The retiring President, after thanking the Society for the honor shown in placing him in such a high position and for the courteous consideration extended him, handed the gavel over to his successor, saying that the Society could not have chosen one better fitted to preside over it.

Dr. Tucker, in assuming the Chair, thanked the Society for the honor conferred upon him, and promised to bring to the discharge of his duties an earnest desire to promote, in every way, the interests of the Society.

Dr. Booth moved that the thanks of the Society should be extended to Dr. Cobb for the able and efficient manner in which he had presided over the body. (Carried.)

The following Chairmen of Sections and Committees were appointed.

Committee on North Carolina Medical Journal Prize.

W. P. BEALL,
R. L. GIBBON,
W. H. H. COBB.

Section on Pathology and Microscopy, Dr. Wm. Graham, Charlotte, N. C.

Section on Practice, Dr. Thomas M. Riddick.

Section on Anatomy and Surgery, Dr. C. O. Laughinghouse, Greenville, N. C.

Section on Materia Medica and Physiology, Dr. A. R. Wilson, Greensboro, N. C.

Section on Medical Jurisprudence and State Medicine, Dr. J. A. Burroughs, Asheville, N. C.

Section on Obstetrics, Dr. Joshua Taylor, Washington, N. C.

Section on Gynæcology, Dr. A. H. Harriss, Wilmington, N. C.

Section on Materia Medica and Therapeutics, Dr. Thomas L. Booth, Salem, N. C.

Committee on Duffy Prize:

Drs. R. LEE PAYNE, Jr.,
A. W. KNOX,
ARCH CHEATHAM.

On motion, the stenographer was paid $25.00 for her services.

Dr. Booth moved that the thanks of the Society be extended to the physicians of Greensboro and the Local Committee on Arrangements, on account of the kindness with which the members of the Society were received in the city. (Carried.)

The Committee on Credentials reported favorably on the following names of applicants for membership and they were admitted.

Drs. G. A. Smith, R. A. Smith, J. M. Williams, W. O. Spencer, Jno. A. Myers, L. H. Hill, G. M. Ives, Thos. A. Boax, L. L. Johnson, A. J. Crawell, Geo R. Hughes, W. C. Ashworth, W. L. McCauless, D. J. Hill, W. W. Pharr, J. R. Gordon, O. B. Stroud, J. D. Edwards, A. H. Harriss, W. B. Norment, N. O. Petree, W. J. Vestal, D. R. Schenck, W. J. Richardson, A. E. Ledbetter, B. F. Hallsey, D. A. Robinson, C. T. Harper, C. O'H. Laughinghouse, J. R. Hester, G. W. Lewis, A. A. Kent, R. E. Cox, W. W. McKinzie, W. J. Jones, Jr., J. M. Hodges, W. C. Steele, C. S. Gilmer, C. L. Jenkins, J. D. Jenkins, C. E. Walker, Thos. M. Riddick, L. D. Wharton, Herbert Mease, W. S. Taylor, J. E. Logan.

The registration book shows the following members present:

Drs. S. D. Booth, T. L. Booth, C. Daligas, W. L. Best, G. T. Sikes, H. H. Harris, W. E. Fitch, M. P. Perry, J. M. Hadley, Albert Anderson, O. McMullen, E. H. Hornaday, M. F. Fox, J. B. Powers, J. P. Fearrington, C. T. Harper, J. D. Jenkins, C. L Jenkins, L. J. Picat, T. S. Burbank, O. D. King, W. F. Shenault, W. S. Taylor, C. J. O'Hagan, W. E. Headen, J. H. Way, R. H. Stancell, Jr., W. S Anderson, A. A. Kent, J. M. Hodges, L. L. Johnson, Geo. Lewis, I. G Ector, W. H. H. Cobb, J. P Munroe, B. F. Hallsey, R H. Lewis, J. W. Smith, L. D. Wharton, W. H. Wakefield, W. H. Harrell, P. B. Loftin, T. M. Riddick, J. C. Jenkins, I. W. Faison, J. M. Hays, R. L. Payne, Jr., S. L. Montgomery, C. M. Poole, D. A. Roberson, C. A. Julian, J. Hill, H. Millis, H. B. Marley, J R. Trevier, W. C. Steele, C. E. Walker, T. A. Hathcock, J. M. Flippin, H. W. Dorsett, B. L. Long, J. S. Upchurch, S. A. Henly, C. H. Lewis, J. M. Boyette, D. R. Schenck, R. L. Gibbon, C. A. Meiseuheimer, J. F. Beall, J. N. Gordon, R. H. Whitehead, N. W. McKenzie, W. P. Beall, J. E. Logan, R. F. Gray, R. W. Tate, Jno. Whitehead, A. J. Patterson, R. D. Jewett, D. C. Parris, J. C. Kirkman, A. G. Jones, P. H. Hill, I. G Broaduax, W. J. Richardson, W. J. Vestal, D. I. Watson, S. P. Wright, W. H. Whitehead, W. H. Wilson, O. B. Stroud, C. N. Roberson, Thos. Hill, J. D. McMullan, D. Smith, F. R. Harris, R. L. Gattis, T. S. McMullan, W. J. Jones, W. G. Freeman, J. A. Faison, W. T. Pate, E. G. Moore, A. Cheatham, L. A. Newell, J. H. Bennett, J. M. Manning, J. M. O'Kelly, J. H. Tucker, W. E. Turlington, E. F. Strickland, J. T. Strickland, J. M. Sheppard, W. T. Turlington, J. D. Edwards, R. W. Palmer, G. L. Clark, J. D. Croom, J E. Malone, R. A. Smith, S J Montague, N. P. Boddie, W. A. Woollen, K. Van Ruck, J. A. Burroughs, J. W. McGee, J. C. Walton, J. L. Moore, L. M. Fox, W. C. Melton, T. E. Anderson, W. B. Crawford, A. T. Millis, M. C. Hunter, J. W. Long, R. E. Nichols, G. R. Hughes, C. B. Ingram, I. M. Tomlinson, W. R. Mayo, R J. Grimes, J, M. Ivis, T. A. Boas, J. A. Hodges, A. A. Mc Daniel, A. E. Ledbetter, J. A. Myers, L. W. Hunter, H. W Dorsett, W. O. Spencer, J. R. Hester, J. J. Cox, D. Hill, W. G. Stafford, W. L. Melanless, K. A Blue, Josh. Tayloe, G. A. Smith, W. O. Cobb, W. W. Pharr, J. R. Irwin, H. B. Weaver, J. M. Baker, A. H. Harris.

On motion, the Society adjourned, to meet in Goldsboro the second Tuesday in May, 1895.

[APPENDIX.]

PRESIDENT'S MESSAGE.

By Wm H. H. Cobb, M.D., Goldsboro, N. C.

Gentlemen of the Medical Society of the State of North Carolina:

I find it difficult to express my high appreciation of the distinguished honor you have conferred upon me by electing me to the highest office within your gift. In accepting the honor thus bestowed, I have been ever mindful of the responsibilities, duties and labors coincident with this exalted position.

Fifteen years ago the Twenty-sixth annual session of this Society was held in this beautiful "City of Flowers," with Dr. Charles Duffy as its President and Dr. L. J. Picot as its Secretary.

To day we are the honored guests of a people unexcelled for their patriotism, intelligence, refinement and culture, and whose open handed hospitality is equalled only by the hearty appreciation of its guests—a people who take peculiar pride in their Guilford Court House Battle Field, rescued from oblivion by the indefatigable and herculean efforts of one of their most distinguished fellow-citizens, where monuments mark the patriotism of their ancestors—who point you to the Normal and Industrial School, Female College and excellent Graded Schools as evidence of their right to boast of being the "Athens" of North Carolina, and to the railroads bisecting their charming city, with the many evidences of a busy, prosperous and happy people.

Our pleasure at this meeting is saddened by the absence of the smile of welcome and warm grasp of the hand of three of our former resident members, Drs. Hall, Alford and Glenn, whose kindly greeting we greatly miss.

The trust imposed upon me by our Constitution to present an address before this body, creates many personal misgivings as to the subject of this paper and as to its proper presentation to this scientific body.

This is the forty-first medical year of this Society—an age that should command respect for its years, and that should cary with it that maturity of thought and action which should impress every one with its character and dignity The honors, responsibilities and privileges of this body, as well as its dignity and progressiveness, should multiply with its added years and should be shared in by the whole profession of our State.

Believing that a short synopsis of my work would not prove uninteresting, I submit below a part of the duties performed by myself.

After the beginning of the new year I wrote to the chairmen of the various sections, reminding them of the fact of their appointments and detailing their

specific duties, as well as those of their assistants, stating that the appointments were not intended as empty honors, but that they carried with them responsibilities and duties which this Society would hold them strictly to account for, and urged them to immediate action, requesting that their papers should be as practical as possible.

The Constitution and general laws governing this Society were remodelled and revised at our last meeting and copies of same sent to every member. My next efforts were in behalf of the 159 delinquents, who, through carelessness and procrastination had been dropped from the rolls, or were not entitled to the Transactions of this Society. To each of the 66 former I sent a circular letter stating that, "according to Article XIX. Section IV, of the Constitution, you have been dropped for non payment of dues for four years, and, unwilling that so valuable a member should be lost to the Society, I earnestly entreat you to be present at our Greensboro meeting, May 15, 16 and 17 next, and be reinstated according to the law above cited."

To the 93 others a circular letter was transmitted, adducing Article IX, Section III, informing them that the Treasurer reported them as not entitled to receive a copy of the Transactions, and requesting them to please forward dues at once to the Treasurer and be reinstated, as I earnestly desire that no member be lost to the Society. While many of these notifications may not be heeded, for it is well known that doctors as a class are careless and wanting in business tact and method, and the "Tar Heel" M.D's are no exception to this rule, yet I received may letters thanking me for the information conveyed and promising to comply with the laws.

I next addressed about fifty letters to prominent members of the Society in different parts of the Satate, expressing the desire to enlist under our banner all worthy regular practitioners of medicine, and requesting that they favor me by furnishing me a list of all such in their respective counties, but by no means give me the name of any physician for whom they were unwilling to become sponsor, and under no circumstances return the name of any charlatan who had gained admission into the medical ranks by perjuring himself in swearing that he was regularly practicing medicine or surgery prior to March 7th, 1895, when he was only known as a cancer quack, horse doctor, or other "toad stool." To this circular I received many valuable replies, but some of the brethren simply copied from the records of their Superior Court clerks all who had registered. Unable to distinguish the regular from the spurious in these cases, the lists were valueless; but to the others, as far as possible, I have sent out over 250 circular letters, as follows:

My Dear Doctor.—The objects of the Medical Society of the State of North Carolina are: "The advancement of medical knowledge, the elevation of professional character and the promotion of all measures of a professional nature that are adapted to the relief of suffering humanity, and to improve the

health and protect the lives of the community." Surely you can heartily subscribe to these articles. I most earnestly invite you to join our Society at the annual meeting in Greensboro, May 15, 16, 17 next, and aid an organized body in the upbuilding of legitimate medicine and the overthrowing of quackery and and incompetency it all its phases It is not only an honor to be a member of your State Society, but you will derive great benefit by attending its meetings, forming firm and lasting friendships among your professional bretheren, and catching new ideas from the discussions of the various subjects presented, and from the Society honors to which you may attain.

Trusting that I may have the pleasure of meeting you in Greensboro and the honor of greeting you as a member of our Society, I am

Yours, etc.

It is to be earnestly hoped that many valuable additions will be gained by this last appeal.

I find upon the roll of members one female physician, Dr. Annie L. Alexander, of Charlotte, who passed a successful examination and was admitted to membership at our Durham meeting in 1885. Finding no record of her attendance since, and believing that the time has arrived when the medical profession of North Carolina should recognize the equality of the sexes in our profession. I made a personal appeal to Dr. Alexander to attend this meeting and present a paper on the Physical Education of the Southern Girl, which, I am happy to state, she has consented to do, and I bespeak for her an attentive and respectful hearing.

My great aim has been to improve the *esprit de corps* of the members of this Society and awaken a greater interest in its success and advancement among the vast army of the profession in the State, who have hitherto kept themselves aloof from us.

A false idea has gone abroad throughout the State that this honorable body in controlled by and run in the interest of certain rings or combinations. I can truthfully proclaim that under its present Constitution it is so broad-gauged and democratic that no ring or trust can control it, but that true merit and devotion to its welfare and progress shall be its ruling and guiding spirit. I believe in that sound democratic doctrine that "to the victor belongs the spoils," and that the honors of this Society should be conferred upon those members who, by their devotion to its advancement, their earnest zeal and frequent attendance deservedly merit such recognition.

Only a few days since a very worthy and competent physician, when approached by me with the request that he join our ranks and aid us in our combined efforts at alleviating suffering humanity and fighting the "miserable geaurilla," as our good friend Dr. O'Hagan so justly terms them, replied that several years since, soon after graduating, he visited an adjoining county where this Society was then in session for the express purpose of joining the same. Upon

making known the object of his visit to an old member, the latter advised him against such a waste of treasure and time, stating that he had been a member for several years and had received no benefit from it whatever. This argument deprived this Society of a valuable member until this meeting. A careful perusal of our Transactions for a number of years failed to show that this old member ever presented a paper, participated in the discussions or showed other evidence of his fitness for membership.

Even if we be drones and work not, our mere presence and attention to the order of business, listening to, if we do not take part in, the discussions of practical reports, cannot fail to teach even the wisest some important knowledge and send us home better qualified to serve our clientele, and with larger and broader views of the ability and usefulness of our bretheren. In after years, when time lays his heavy hand upon us and our usefulness is fast fading from view, in turning over the leaflets of the book of memory no page will shine brighter than that on which is inscribed the pleasant and profitable communion with our professional bretheren at our annual Society meetings.

THE GENERAL PRACTITIONER AN THE GENERAL SPECIALIST.

The contagiousness of rapidly rushing into "specialism" has so fastened its grip upon many of the younger members of the profession who view only the large and lucrative practices and incomes of successful specialists in the large cities, that I would fain enter an earnest protest, at the same time make an urgent plea for the general practitioner whom I have the honor to poorly represent; not that I propose attacking specialism in its true sense, but the pseudo brand; for specialists have grown to be a necessity, and their should be no antagonism between the general practitioner and the genuine specialist, for each is auxiliary to the other.

To become a specialist in the real sense of the word, should require far more time and preparation than the average aspirant is willing to expend. In the first place, like every candidate for any medical honor, he should receive a thorough collegiate, or at least a classical education; and I think, par parenthesis, that this Society should express itself in unmeasured terms of disapproval of any person being in any way encouraged to choose this noblest of all professions, save only the ministerial, until he has received at least a classical education. He should be well grounded in the foundation principles of medicine, and after receiving his diploma enter a general hospital for a sufficient length of time, then a general practice, preferably as a partner with an old experienced practitioner for a term of years, and, after spending several months in a post-graduate school, he would then be prepared to practice his chosen branch of his profession. The knowledge gained in a general practice will avail much in attributing many ailments, apparently local, to a general constitutional cause.

Specialists have so increased within the past few years that every part of the

human anatomy is claimed by them, beginning with the alienist and ending with the chiropodist The relations between some gynesic and general surgeons are becoming somewhat strained, as the former claim that any invasion of the abdominal or pelvic cavity by the general surgeon is unwarrented, save only in abdominal and pelvic wounds, intestinal suturing, resection or anastomosis, and accidents necessitating abdominal section. It seems fittest that the gynesic surgeon should rightfully claim all operations within the female pelvis and abdomen, and relegate to the general surgeon operations in like cavities in the male.

While the general practitioner will remain a necessity in the towns and rural districts, his field has been so encroached upon in the large cities that his chief professional duties consist in diagnosing his cases and then witnessing the specialist appropriate both his patient and his pay.

It is the imperative duty of every general practitioner to become a general specialist in certain cases, when the services of a competent specialist cannot be commanded. He should so post himself in the technique of the graver operations that when necessity demands he should use that conservatism in surgery which means the alleviation of pain and the saving of human life. I refer notably to laparotomies for ectopic gestation with rupture, hemorrhage and shock, where death is certain without immediate surgical interference; for intestinal obstruction when all other means fail, not delaying the operation too long; and for wounded intestines and suppurative appendicitis, for pus demands removal as soon as diagnosed; for symphysiotomy or Cæsarean section, when a contracted pelvis disputes the right to "pass beneath that triumphal arch under which every candidate for immortality must pass," when the lives of both mother and babe are in imminent peril.

While it is impossible for the general practitioner to do original work in all directions, and it is hardly feasible to be sufficiently familiar with all medical science to practice it in a way creditable to himself and with justice to his patients, yet every physician who is imbued with that spirit which distinguishes the man of science from the mechanic and money-maker, wishes at least to know the most important discoveries, inventions and events that are made and occur in any part of the vast field of medical science, in the wildest sense of the word.

Many of the general practitioners of North Carolina are so accustomed to do successful general and gynesic surgery, that they would be classed as specialists in any other Commonwealth; their results will compare favorably with those obtained in the largest cities possessing the advantages of hospitals and trained nurses. They are the peers of any in these great United States; and we should disapprove the practice of sending all kinds of surgical patients beyond our borders for operation.

THE NORTH CAROLINA MEDICAL JOURNAL.

I take this occasion to call upon the profession generally, and the members of this Society specifically, to subscribe for, and contribute to, the NORTH CAROLINA MEDICAL JOURNAL, our recognized organ. It is a duty we owe ourselves and the profession at large to report through our home journals all cases of an interesting character, medical, surgical and gynecological. Be sure to report your unsuccessful cases, for we learn much by our unfortunate results, and reliable statistics cannot be obtained unless our failures as well as our successes are recorded.

THE CHARLOTTE MEDICAL JOURNAL.

The *Charlotte Medical Journal* is another worthy candidate for our support. State and professional pride should prompt us to sustain our home journals. Other States in this progressive era have numerous medical journals while we have but two, and it should be the duty as well as the pleasure of every North Carolina medical man to give them both his support.

STENOGRAPHER.

The duties of our efficient Secretary are such that he cannot possibly report thoroughly the discussions, which are the most valuable and practical part of our meeting; so, after conferring with him, we decided to secure the services of an expert stenographer, that full and reliable reports can be made. It is only necessary for me to inform you that our reporter is a lady, to secure for her that respect and courtesy her sex always receives at the hands of professional gentlemen.

CONSTITUTION, BY-LAWS AND CODE OF ETHICS.

I would respectfully recommend that the Constitution and By-Laws of this Society, together with the Code of Ethics of the American Medical Association, be printed in each year's Transaction of this Society, so that every member can have a ready reference to our organic laws and govern himself accordingly; and each new member be presented with a copy of the same in the Transactions of the preceeding year.

LIBRARIAN OR PERMANENT SECRETARY.

I would respectfully recommend the amendment of our Constitution so as to include in the list of elective offices a Permanent Secretary or Librarian, who shall reside in the City of Raleigh; that he shall keep all records, files of proceedings and other property of this Society, not necessary for the Recording Secretary; that he shall exchange the proceedings of this Society for those of the various State, national and other medical, surgical and special societies, and keep the same properly indexed, and have charge of all books, periodicals, instruments, pathological, anatomical and other specimens donated to or otherwise obtained by this Society; and shall loan the same to the members thereof, under such rules and regulations as we may adopt.

The reason for suggesting the above recommendations is that we may have some safe and permanent place of deposit of valuable publications and donations which we hope to receive in the near future.

The Recording Secretary has only one trunk of limited capacity, and doubtless many valuable papers have been lost for want of proper transportation facilities and place of deposit, by frequent change of secretaries.

I take this opportunity of appealing to the profession of North Carolina to donate to this Society books, periodicals, instruments, anatomical and pathological specimens, etc., etc., which shall be a nucleus for a library and museum. Such gifts would be monuments of their love for their profession, and far more beneficial to their bretheren than the paltry sums obtained by post-mortem sale could be to their heirs.

We shall eagerly watch for the first donation, whether from a living brother, resting from the active pursuit of his profession, or provided for by the will of some departed and beloved member.

OUR DEAD.

Since our last session several of our bretheren have been call from labor to their rewards. Among those who have passed from the isle of time to the mainland of eternity are four of our oldest, best beloved and most honored ex-presidents.

Dr. N. J. Pittman, of Tarboro, who joined the Society in 1850, was President in 1860 and 1861. He so loved his Society that he offered an annual prize of $100 for the best scientific and original paper, and one of the last acts of his life was the signing of the check for the prize awarded at our last meeting.

Dr. E. Burke Haywood, of Raleigh, who became a member in 1850, was President in 1869. Honored and loved by all who knew him, his distinguished ability was only equalled by his modesty and affability.

Dr. J. J. Summerell, of Salisbury, joined this Society in 1855, was President in 1862. He was a zealous, faithful member, and died a triumphant Christian, December 17th, 1893.

Dr. E. A. Anderson, of Wilmington, became a member in 1852, was President in 1870, and actively engaged in the practice of his profession for nearly half a century.

I leave to our Obituary Committee the loving duty of offering fitting tributes to their memory, only recommending that an appropriate memorial page be assigned to each in our Transactions.

In conclusion, let me beg that in future our chief aim shall be to preserve the honor of our profession, to advance the interests of our Society, to cast aside all improper personal feelings, bury the past, as far as personal differences occur, remembering that "we be bretheren." Live the golden rule; do not trust to the popular praise of the multitude as your guide in the performance of your duty

to your fellow man, but always keep prominently in view the Fatherhood of God and the brotherhood of man; for applause is so evanescent that one day it is lavishly and possibly unworthily bestowed, the next grudgingly and maliciously witheld.

"To-day, praised and enthroned,
To-morrow, cursed and stoned."

While you should ever keep in rememberance that "the laborer is worthy of his hire," that "he that faileth to provide for his own household is worse than an infidel," and that you should exact just compensation for services rendered, yet your chief aim in life should not be to make money out of your profession. The warm grasp of the hand, the grateful appreciation of services rendered, and the hearty "God bless you"! from a poor but loyal patient, has far more enriched my soul than the shining coin or bacillus-laden bank notes could my purse.

Do not become hypnotized by the dazzling success and questionable means resorted to by some in our profession; but patiently, modestly and slowly win your way by means that will ultimately secure the approval of your own conscience and the honor and affection of your confreres, remembering that it is far better to listen to the plaudits of your inward monitor than to the clink of gold or the clarion of fame.

To facilitate the business of this Society, I would respectfully suggest that before papers are presented a rule be adopted limiting the reading of all papers to 20 minutes, except by consent, and the discussions to 5 minutes by each speaker, with the privilege of the floor only once upon the same subject, and that the author of the paper be allowed to close the debate.

To the Committee on Credentials I would urge that special inquiry be made as to the moral character of all applicants, and to this end see that all applicants are vouched for by two members of this Society, or other responsible parties.

Remember that only *regular physicians*, and not perjured quacks, can cross our threshold. See Constitution, Art. 3, Sec. 2; also Art. 7, Sec. 1.

HOW SHALL THE PHYSICIAN TREAT PULMONARY TUBERCULOSIS AT HOME?

By Karl Von Ruck, M.D., Asheville, N. C.

I asked this question some fifteen years ago of an eminent medical authority. His answer was: "Make your patients as comfortable as possible until they die;" and, indeed, the few and doubtful recoveries at that time seemed almost to justify such advice.

This hopeless view had so well taken ground for years past, that it was then and is still, in a measure, a great obstacle toward systematic and well-directed efforts for successful treatment.

Happily the last few years have awakened an interest which has already brought fruit, and the better outlook is becoming a wholesome stimulant to further efforts.

In answering my question, I would call attention, in the first place, to the necessity of an early diagnosis, for it is only in the earlier stages that we can hope for the best results, and the chances diminish in proportion as the disease is allowed to advance.

In a paper written by me and published in *Gaillard's Medical Journal* for October, 1891, I considered some of the causes for the frequent failures in this direction, and pointed out several means to their avoidance, and, inasmuch as I cannot repeat what I stated there, I shall be glad to furnish reprints to any physician who may wish to read it.

If the diagnosis is made early we find that the general health of the patient is, as a rule, still comparatively good, the resisting power of the organism and its powers to respond to our efforts being good in proportion and in this early stage, the disease yields readily to a systematic general management consisting of dietetic and hygienic measures, with such medicinal treatment as may be indicated in the particular case.

This general management is in a sense preventive; that is, it has for its object the removal of every obstacle to a favorable progress, and at the same time it is curative, in favoring nature's efforts for repair and recovery. Unless it is painstakingly and persistently followed, all other measures will, as a rule, prove elusive, the patient will relapse again and again from his own errors and indiscretions, and neither climate, tuberculin, inhalations, creasote or any other thing or mode of direct treatment can prevent such relapses or atone for the otherwise faulty course the patient pursues.

With a large experience both in private and institution practice, I find that there is only one safe and comparatively sure way to keep the patient on the road to improvement and recovery, and that is by controlling him in all his

daily life and conduct, by personal supervision and by observation of his needs and timely advice and insistance on our part, that it is to be complied with.

Such personal control must extend to every detail, it includes regulation of diet, clothing, rest, exercise, sleep, personal hygiene, mental and physical exertion, with instructions as to how, when and where, and proper explanations as to why this, that or the other is to be done or avoided, and admonitions as to the dangers incurred in retarding improvement or causing relapse, if the patient come up to our requirements; thus the management is a continuous course of instruction which the patient must learn and profit by, and is necessary, in the first place, to improvement and recovery, and indispensable to their maintenance and permanency, for the recovered patient cannot return to his previous habits, exposures and indiscretions without again jeopardizing the result obtained. Inasmuch as such a systematic management can be carried out only in an institution for the special purpose, and inasmuch as without it the recovery of the patient becomes, as a rule, a mere matter of chance and rare accident, I propose "THE ESTABLISHMENT OF INSTITUTIONS AT HOME REGARDLESS OF THE CLIMATIC CONDITIONS OF THE PARTICULAR LOCALITY," especially for that class of patients who, either for want of means or other reasons, cannot be sent away from home.

The important object of prevention will largely be subserved if my proposition for the best mode of treatment is carried out, and while we may ordinarily instruct our patients as to the dangers from tubercular excretions, especially the sputum, few are intelligent enough or appreciative enough to comply with our requirements until we thoroughly train them. Thus a patient will readily avoid spitting in his handkerchief or upon floors or carpets, but thinks nothing amiss if he cough with his mouth wide open and project small particles of sputum about him, or if small particles of sputum adhere to his moustache or lips, to wipe them off with his handkerchief. Every patient taken out of his home to a sanitarium or hospital, means one less centre for the infection of others; for in private practice the necessary training, supervision and control are not often feasible and preventive measures are at best only partial.

This is still more true in the treatment and management we advise when our patient remains at his own home; our visits or consultations are then only sought when the patient feels not so well, and often then only when he has exhausted his own and his neighbor's remedies.

Instead of seeing our patient for the purpose of maintaining continuous improvement, we attend him to help him over his severer relapses, and these partially recovered from, the patient again sails the leaky ship of health until he founders upon the next rock obstructing his path to recovery Thus the way to the consumptive's grave is paved with relapses, and the relapses are due, for the most part, to faulty conduct, to insufficient judgment, to ignorance, to want

of self control and to the folly of mistaking an improvement for recovery and abandoning too early the prescribed course.

These relapses are, as a rule, preventable, but only under the constant and unremitting vigilant supervision of the experienced physician or his trained assistants, who understand and appreciate their causes.

Human nature is frail and the consumptive is human, made more frail by disease, and he, of all others, is over confident that by some special providence he will escape the fate that he naturally points out for his consumptive neighbor.

He protests that he is going to follow our advice to the letter, and flounders on the slightest occasion. If he improves, there is no period so dangerous to the consumptive as that when he is becoming conscious of his improvement; he then believes himself secure on the high-road to recovery, and often at a time when the slightest over-exertion, an injudicious meal, or any other indiscretion, can readily throw him back into the deep sea of re-advancing and destructive disease. One such experience is seldom enough, he finds every excuse to shield his own responsibility, and if he can blame nothing else, it must be the climate or the weather, or the last dose of medicine that failed to agree! As a rule, he is not satisfied until he has repeated his fool-hardy trifling and has relapsed over and over again.

A radical improvement is with him a sure cure; he then wants to return to his previous condition, habits, modes of life and business, and he does this frequently in spite of the best advice—in the end to his sorrow.

Such patients need control and the strongest influence to keep them upon the right path and to make them pursue it until they are safe.

Consider, then, how hopeless it is for the patient who consults us or calls for our advice, and when he considers it necessary, and then follows as much of it as he thinks proper for himself, to really make a recovery in private practice.

The patient, and, indeed, some physicians, also, cannot appreciate how little it takes to cause the scale for a time to balance on the wrong side, simply because they have not had the experience and opportunity for observing, and by the time he has learned it for himself, if he ever does, he is advanced beyond the hope of recovery.

Thus life after life is lost, and we bewail the fatality and regret the great mortality of the disease, which in the earlier stages is quite easily cured, indeed, we go so far as to question the possibility of a cure, while in my own as well as in other well conducted institutions, especially when combined with favorable climatic conditions, recovery in the early stage is the rule.

Even without the advantage of climate, a good majority of such cases can be recovered, a fact which I have heretofore demonstrated in my own experience.

The advantage of institution treatment at places offering also the advantages of a favorable climate are for the present only within the reach of those who

can leave their homes and meet the necessary expenses; the great majority of patients belong to the poorer classes, and so far as permanent results are in prospect for them, we still do little more than to "make them comfortable until they die."

I am, however. satisfied that if my proposition can be carried out (for their treatment at home) many more cures will then be accomplished. That they may be treated in time, it is essential that the patient or his responsible friends be early informed of the nature of the disease and of the probable outcome if our advice should be disregarded.

To establish a special hospital or sanitarium, where each physician in a town can place his patients, requires the concerted action and interest of the local medical men, and I doubt if they could consider a more important, more life-saving or a more humane subject.

Once united in the desire to accomplish this, the profession in any place have sufficient influence to interest their well to-do friends and acquaintances, and ways and means will readily be found by such joint efforts for obtaining a suitable building and for its equipment and maintenance.

If an ideal establishment is not at once within reach, the best that is obtainable will, no doubt, answer the purpose, and if you will insist upon the advantages and present the subject properly to your tubercular patients, you will have little difficulty in inaugurating the good work by their seeking admission. Many of them will be able to pay their way and the institution can soon be self supporting. I have demonstrated this, also, some years ago, in a locality where the climatic conditions are highly unfavorable, and where the mortality from tubercular disease is very great. I established there a sanitarium for consumptives unable to meet the expenses of distant travel for climatic benefit, and, although single handed and ridiculed by some of my colleagues, the establishment paid expenses for its maintenance from the first month to its close.

With much less experience on my part and without the advantages of climate, the clinical results for all stages obtained in 58 cases treated (ascertained in two years after the institution closed) were 41.5 p c. of recoveries and 24.1 p. c. of radical improvement, and I considered them so satisfactory and beyond my then most sanguine expectations, that they determined me to devote myself entirely to the special work in question.

Why cannot this also be done in the larger towns of our State?

Knowing, as we do, how hopeless the outlook is from the usual treatment and management, in the patient's own home, knowing also how few recover. even of those who travel from one climatic resort to another, and in the light of the good results obtained in institutions, why not, at least, make a trial?

You will indeed find that your results from such a trial will by far exceed those which your wealthy patients obtain in their customary unguided efforts and endeavors, to effect a recovery by the employment of climate combined

with occasional professional advice, wherever and to whomsoever chance may lead them. Look back over your practice among such patients and see how many have really recovered.

What they do accomplish is perhaps an occasional recovery, but more frequently only prolongation of life, not so much because the climate helps them, but because they avoid the changeable and inclement weather at home, and therefore are less liable for the time to the relapses from exposure.

They rarely make use of climate in a manner so that its greatest benefits can be derived—they know not how—and think so long as they breathe the air out of doors it will in some mysterious way remove their tubercular disease, and many physicians support this belief.

Allow me to give you a familiar history of such a case, the son of wealthy parents, who spent much money and got nothing for it, and in whose case success would, in all probability, have followed in the most modest special institution at home without the advantages of climate; and such cases occur by the thousands. In the particular case to which I refer, the diagnosis seems to have been made early, at least the home physician prescribed creasote in increasing doses upon the first consultation.

Six months after he first consulted his physicians he had a slight hemorrhage, which gave the signal for a change of climate, it being at the same time the season of beginning inclement weather at home. Coming to Asheville, his mother brought him to me for examination, but conditioned that her son should not be told anything about his disease—she alone was to receive my opinion. I found infiltration of one upper lobe with circumscribed apex catarrh, tubercle bacilli in the sputum.

My advice was disregarded, because its adoption would undeceive the unsuspecting victim, who believed he had only a bad cold settled in his bronchial tubes, and the mother was satisfied the climate had already done him a great deal of good, after having been in Asheville three days!

He remained four or five months, gained some weight and coughed less, when they returned to their home in the spring, and again to Asheville in the autumn.

I was again consulted, this time an attack of malaria (?) in the past summer was added to the history, but I found a small, suppurating cavity and the patient suffered from septic fever. The opposite lung had also become involved.

Remaining in Asheville a few months, they started for Colorado, concluding that this time the climate was not agreeing, and no wonder, as the patient's conduct and treatment were anything but conducive to his improvement. He was, indeed, out of doors almost continually, but it was either on foot, carriage or horseback riding, and the home physician treated the case by letter, rather in a symptomatic way, unless the creasote, which was continued,

was supposed to aid the climatic cure. He was taking phenacetine for fever, an opiate mixture for cough, atropine for night sweats, a bitter medicine to give him appetite, a powder to make him sleep, and pepsin to digest his food. He was very anæmic, but strange to say, he had neither iron or arsenic, which would have completed the very formidable array of drug remedies. This was a year ago. The past winter I received a letter from the mother from San Diego, Cal., in which she stated that neither the Colorado nor the California climate agreed with her son, and that he was getting thinner and weaker all the time, and if I thought I could cure him she would now bring him to my institution as soon as he was able to travel. Of course I disclaimed any such ability, and I doubt that he ever became able to travel in search of the curative climate again.

The culpable ignorance and blind faith of such people would be amusing if the results were not so sad and serious in the end.

The terrible lessons such cases teach we can all appreciate, but you will appreciate it as you never could before, after you have established your institution in your own town or city and have observed how readily your patients respond with improvement, and eventually with lasting recoveries, to your efforts there, especially when they are made in an early stage.

Your institution will outweigh any climatic advantages, and so long as you cannot have the climate and institution both, your patient will have a much better chance if he relinquish the former in favor of your constant, personal control of his mode of life and of his hygienic and dietetic necessities.

In this manner you will prevent relapses, you will be clearing the way of obstacles and of detrimental influences to nature's ever present efforts to repair and to restore. You will then be able to aid her intelligently, in the light of close observation and experience, with such therapeutic measures as are at your command, and which you can there employ with regularity, system and precision.

Your patient's opportunities for errors and relapses will be largely diminished the moment you have thus taken charge of him. You will then apply the treatment of pulmonary tuberculosis as a comprehensive whole, based upon the broad principles of reconstruction and nutrition, and while you will have no cure-alls, you will find that we are by no means barren of resources, and that many of our therapeutic agents can come to your aid, at one time or other, to meet particular indications as they arise. You will find that the air in your own locality is, after all, not so bad!

Thus the treatment in an institution is for the day, for the hour—what you may require of one patient you may have to forbid another, his present needs and condition governing in all things, and at all times in pulmonary tuberculosis as well as in the treatment of other diseases Once your institution established, you will have little or no difficulty in its management, and until your

personal experience is ripe and ample, you can be sufficiently guided by the experience of others who have met with success in institution treatment, until you shall add your own share to our knowledge, in still more successfully dealing with this most important, but most neglected, of all the diseases we are called upon to treat.

If thus my experience could be of any service to the medical faculty of any community in this State who will take the initiative and establish an institution for phthisical patients, I should gladly give them the advantage thereof and as much of my time as will be needed to get it under way.

Such an institution would grow, would reflect credit upon the town or city, would be a source of congratulation and satisfaction to its promoters and become the means of saving many lives otherwise almost surely lost, and a blessing to all concerned.

Desirable as the establishment of such institutions appears, benefits from their establishment are a matter of the future, and even then the number of patients that can take advantage of them will be limited.

Confronted with tubercular patients now, whom for the present we must still treat at their own homes, I will briefly outline what, in my judgment, would give them the best chance.

This chance, as already stated, depends very largely upon the co-operation of the patient, but if he is not properly instructed, or if his conduct and mode of life is nevertheless faulty, our efforts will prove of little real benefit. We must therefore see to it that he not only understands what we demand of him, but also that he is thoroughly convinced of the importance of his part in his treatment.

In a general way, the management consists in absolutely forbidding all physical and mental exertion to a degree which causes sensible fatigue or shortness of breath in the individual patient, and he must watch this himself; all exercise which he, however, can take during hours when he is free from fever, without reaching fatigue or shortness of breath, is beneficial.

The patient must keep a record of his temperature, and when fever is present the record must be made at frequent intervals, at least until we know the usual time when the temperature begins to rise. The latter reaching 100° F., the patient must go to bed, in a well ventilated room, and keep the recumbent position until the fever has subsided. He must on the following day anticipate the fever of the previous day by going to bed an hour earlier.

Elevation to 100° F. or over requires the application of an ice-bag over the heart until the temperature is reduced to below 100° F.

In all fever patients and in other cases where there is pulmonary congestion, irritable cough or pain in the chest, a cold wet compress encircling the chest, covered with dry flannel, should be applied at bed time and remain all night.

A cold sponge bath, followed by vigorous dry friction, must be given every morning. Menstruation is no counter indication.

In the absence of fever the patient's diet should be mixed and generous, and if he has not sufficient appetite, milk must be given freely between meals.

Fever patients should, as a rule, receive only liquid food, with bread and butter added, while the temperature is elevated; the heartier meals must be given when fever is absent.

The patient's out-of-door life is important at home as well as at climatic resorts. Whenever the weather is favorable he should be out of doors, not, however, constantly on his feet or in a carriage or on horseback, conditions which come within the limit of exercise, but quietly sitting or reclining upon a porch or place protected from wind and dust. The inhalation of dust is alway sinjurious, and the patient should be particularly warned to avoid it.

Medicinal treatment should be resorted to only when the general management is not followed by satisfactory improvement or when complications arise. Excepting quinine, and preferably the salicylate, no drug antipyretics are permissible.

Cod liver oil should be given to patients who bear it well, even if we should have to limit or decrease the use of other fats.

Creasote should be considered only as it may influence the bronchial catarrh or certain digestive derangements, it having no direct influence upon the disease.

Diarrhœa not controllable by proper diet, yields best to dermatol (subgallate of bismuth), 8 to 10 grains every three or four hours, or to similar doses of salicylate of bismuth every six or eight hours; moist compresses to the abdomen over night are also beneficial.

Cough with expectoration should not be interferred with, when due to congestion it yields to rest, when dry and harassing, apo morphia, 1-16 grain, with or without codeine, 1/8 grain, every two to four hours, gives the best results. Moist, soothing inhalations should be tried before resorting to opiates. Many times paaryngeal catarrh is present and its treatment is then essential for relief of the cough. Night sweats yield less rapidly but more lastingly to cold sponge baths at bed time, and the use of the ice bag over the heart, with which the patient goes to sleep. Strychnia, 1-20 grain hypodermically, should be given on retiring, when the sweating is due to weak heart action, followed by subnormal temperature. A dose of brandy or rum, in milk, is also of benefit. Atropine should not be used.

Pleurisy, either acute or the circumscribed, dry form, requires strapping, for the relief of pain, rest in bed, counter irritation, and, if effusion is present, the proper medical or surgical treatment for it.

Bloody expectoration and hæmorrhage is, as a rule, the result of physical over exertion and otherwise improper conduct of the patient. Rest in bed,

control of cough by morphia, hamamelis, and the ice-bag over the heart have given me the best results. We rarely see hæmorrhage in my institution; in all cases treated there, it has occurred in less than 2 per cent. In anæmia I have been disappointed in the preparations of iron, and found, as a rule, that they are not well tolerated and tend to constipation. In some cases the blood conditions improve under otherwise correct management and liberal diet, together with proper out of door life.

In obstinate cases, as already stated, all the preparations of iron have failed me until recently, when my attention was directed to peptomangan,* and from carefully conducted observations over the past six months, I find this preparation the most satisfactory of all that I ever used. It has been uniformly well borne by the stomach, indeed, in most cases, the appetite and digestion became better at an early period of its use, while with only two or three exceptions, the red corpuscles increased in number, their form improved and the percentage of hæmoglobin was materially increased. The few failures which I observed occurred in cases of advanced intestinal tuberculosis, in which it was perhaps unreasonable to expect benefit.

I fear that some of my hearers will be disappointed with the simplicity of the treatment proposed, and from which all medication is excluded, unless for present complications. To such I would say that if they will conscientiously apply it upon the principle of being great in little things, if they will keep their patients steadfast and prevent relapses by securing their confidence and appreciation of the means employed for their welfare, they will eventually appreciate what may now appear an uninteresting paper.

The limit of my time obliged me to cut out many details, and I purposely omitted reference to any specific or special treatment, it being hazardous to attempt such in private practice, *but shall be pleased to give such additional information as may be desired, in the discussion of this paper.

DISCUSSION.

The author was requested to state whether he had found any place for cod-liver oil in the management of his cases, and whether creasote did not have an influence over the amount of expectoration. He was asked to enlarge upon these points.

Dr. Von Ruck advised the use of cod liver oil at all times when the patient is able to bear it and referred to his paper where he had already spoken of it as well as of creasote. Cod liver oil was valuable in the first place as the most easily assimilated fat, and as an agent that frequently shows a favorable influence upon cough.

With creasote the author made some experiments four or five years ago for the purpose of determining its influence upon the tubercular process directly.

*A preparation imported by M. J. Breitenbach & Co., 56 Warren Street, New York City.

A number of patients received creasote or guiacol hypodermically in increasing doses and in several cases four grammes (60 minims) per day were tolerated and given for 60 days. During this time the patient's breath and secretions showed the creasote odor, and before the discontinuance of the remedy cultures of tubercle bacilli were made from their expectoration. The sterilized serum of their blood was used for culture soils, while control experiments were employed at the same time. Without going into the details, the author gave assurance that every source of error was excluded and the results were as follows: Tubercle bacilli from the creasote patients grew the same upon serum of the ox as upon their own serum. Tubercle bacilli from other sources grew the same as those from creasote patients, upon serum from the ox, and upon serum from creasote patients. Inoculation of rabbits with cultures from creasote patients grown upon their own serum, caused tuberculosis, and this tuberculosis was typical and fatal, and the experimental tuberculosis differed in no wise from that of control experiments, with cultures from other sources and upon serum from the ox.

Therefore he felt justified in concluding that creasote had no influence upon the cause of tuberculosis, that is the bacillus itself.

Neither was there any apparent influence upon other pathogenic germs; indeed, two rabbits died of peritonitis from the injection of sputum into their abdominal cavity, the sputum having come from the creasote patients.

Dr. Albu, of Berlin, about two years ago made similar experiments and came to the same results.

Creasote appeared, however, valuable in certain gastric and gastro-intestinal derangements, but must then be given by the mouth and in moderate doses. It also showed a favorable influence upon the symptomatic bronchitis, with excessive secretions. It is a stimulant to all mucous membranes. He believes this is all there is to the creasote treatment, and since it often becomes an irritant to the gastric mucous membrane, great care should be observed so that it shall not do more harm than the possible good expected. Given hypodermically, both creasote and guiacol reduce the fever temperature under profuse perspiration, acting the same as antipyrine in full doses.

In experiments referred to the remedy had to be discontinued in four patients, after doses of 20 to 30 minims were reached, the discontinuance was made necessary once by the development of serious anæmia, which disappeared

NOTE, Sept 1st, 1894.—Since the above paper was written, the purified modification of Tuberculin, as now prepared by Prof. E. Klebs, and endorsed by Professor Koch, has been employed in my institution in about twenty cases. The results are highly encouraging and in large doses a destructive effect upon the tubercle bacilli under subsidence of the fever, together with rapid improvement in the physical and general symptoms has been uniformly observed; while in no case have I witnessed any disagreeable or undesirable effect; the substance producing such in the original Tuberculin having been removed by Professor Klebs. Its unmistakable germicidal effects, and the satisfactory and rapid improvement observed and its entire safety would seem to bring this preparation within the reach of the general practitioner.

afterward; twice on account of profuse sweating and production of sub-normal temperature with subsequent rapid rise under chill, and in the fourth case on account of renal irritation and occurrence of hæmaturia. In the cases who continued the remedy to sixty minims per day for two months, the local disease was not materially influenced, except in one case where early in the treatment the bronchial catarrh diminished, and the patient gained in weight eleven pounds, but he was gaining before the remedy was employed; two patients lost weight, one gained a few pounds at first but lost it again later, and on the whole Dr. Von Ruck was not impressed that the general condition was influenced for the better, under large doses, on the contrary, in the cases which dropped out, the nutrition suffered more under the creasote treatment than without it.

He was asked his experience in the use of arsenic and in the use of strychnine to harden the lung substance. He said that he had made extensive use of arsenic some years ago, but had not found that it had any particular favorable effect in the treatment of pulmonary tuberculosis. He called attention to what he had referred to in his paper, "the desirability of establishing sanitariæ in all places regardless of climatic conditions." He emphasized his belief that the correct management in all the minute details in the patient's life far outweighs all climatic treatment as generally carried on. He believed in the use of hypophosphites when indicated by the condition of the nervous system. As to baths, he said that a bath once a day, followed by massage, is very beneficial to the patient. Drugs should be used only if indications were present, and under no circumstances whatever, as a routine treatment Night sweats should not be treated with drugs, if the patient can be gotten in such condition that on retiring in the evening he has no fever, there is not often occasion for prescribing for night-sweats. The best remedy for night-sweats is the proper management of the case. In a general way the author emphasized that there is nothing more important than a good stomach, a good heart and good common sense on the part of the patient. They are the requisites for recovery.

Dr. Moore congratulated the author upon the suggestiveness of his paper. He spoke of the grand climate of Western North Carolina, and hoped that soon there would be sanitariums established all over that country. He said that the author of the paper was correct in saying that patients should not be sent to a climate without judicious treatment on the part of some attending physician. The patient must have the proper attention as well as the bracing climate. Then he spoke of practice in the low country, where the climatic conditions are not so good. He said that when he had a patient who was capable of removal, he invariably sent him to that part of the country, and generally found that if he was properly treated he received good from it. He laid great stress on paying minute and particular attention to the diet and the digestive organs of the patient. His great trouble had been the loss of appetite

on the part of the patient. He was a great believer in the use of the hypophosphites to assist digestion. He called attention to the instability of the hypophosphites and the trouble from fermentation when the syrups were used. He used a dry preparation, which, to be ready for use, required only the addition of water, and he said that it agreed exceedingly well with the patients. He spoke of creasote as an irritant that should be guardedly used. It is sometimes beneficial, but where the irritation is decidedly marked, better results will be more apt to follow by the absence than by the presence of creasote.

PHYSICAL DEVELOPMENT AND TRAINING OF GIRLS.

By Annie L. Alexander, M D., Charlotte.

Preventive medicine has come to be an important branch of study in the medical profession. Many of the colleges have introduced chairs for its teaching. The custom of the Egyptians to pay the doctor so long only as he keeps the family well, has much in it to recommend it to our consideration. Every means should be used to prevent disease.

The most important department of medicine has come to be the diseases of women. My experience in ten years' practice has proven to me that many of the diseases are preventable, by proper physical training of the girl from infancy. The vast majority of mothers are ignorant of the first principles of physiology and hygiene, and hence cannot teach their daughters. It is the duty of the physician to instruct mothers and teachers, and how rarely is this done before the girl is injured. We should consider this our duty as surely as we do to protect against small-pox or diphtheria.

The time for sentimental ignorance is past; anatomy, physiology and hygiene should be taught in the home circle and in schools. These branches are taught to a certain extent in most of our schools for girls, but not thoroughly, the teachers frequently not practicing what they teach

Canon Kingsly, in his book on "Health and Education," says: "Let duly educated and legally qualified women teach women what every woman ought to know. . . . Let woman be restored to her natural share in the sacred office of healer which she held in the middle ages and from which she was thrust during the sixteenth century." In the past twenty five years such women as Drs. Elizabeth and Emily Blackwell, Mary Putnam-Jacobi, Mary Safford, and many others, all "thoroughly educated and legally qualified" women physicians, by their printed and oral addresses have awakened thought, stimulated inquiry and inaugurated a reform in habits and dress that is much needed.

A few days ago Dr. William Blakie had an article in *Harper's Magazine* in which he showed that the standard of physical development of the present generation is not up to the standard of our ancestors. The brains of the American children are stimulated to the highest degree, while the poor little bodies are neglected; we see stooping shoulders, narrow chests, thin and flabby muscles—the brawn is not equal to the demands of the brain. It is only in the *best* schools that the gymnasium is used for physical culture.

Many of the ills of women can be traced directly to faulty dress, neglect of hygienic principles and neglect of mothers and teachers in teaching girls what they should know of themselves. The subject of dress reform has been agitating the minds of thinking women for the past quarter of a century.

Invalidism of young girls is attributed to every cause but the right one—faulty dress, want of proper exercise, regular hours, proper eating and the knowledge of their physical functions. Every college for girls should have lectures weekly from a "thoroughly educated and duly qualified" woman.

Mrs. Mary Livermore says there is a theory practiced among civilized races which may be worded thus: "God knows how to make boys, and when He sends a boy into the world it is safe to allow him to grow to manhood as God made him; he may be too tall or too short for our notions, too stout or too thin, too light or too dark; nevertheless it is right, for God knows how to make boys. But when he sends a girl into the world it is not safe to allow her to grow to womanhood as He made her. Some one must take her and improve her figure and give her the shape in which it is proper for her to grow." Accordingly the growing girl is encased in a stiff, unyielding corset, and her physical deterioration begins.

We read that in the days of primitative man, women first began to shape themselves to an ideal. Homer's Juno wore a many-layered girdle In the dark ages lacing disappeared from Europe, to reappear in the sixteenth century. The corset of Catherine de Medici and of Elizabeth was a sheath of nearly solid metal—indeed, a "terrible engine" Ambroise Pare testifies that from such pressure death occasionally ensued, citing his "*sectio cadaveris*," on a subject whose lower ribs over-rode one another. During the Revolutionary period and the early part of this century, tight lacing was more prevalent than ot the present time.

The tight corset and bands have the same effect on a growing girl, but not so limited, as a tight band fastened around a growing branch of a tree—the circulation is impeded and the growth of the compressed parts interfered with. No young growing girl should be allowed to wear a corset. The women in the medical profession, who are gaining in numbers, influence and practice, denounce the corset unqualifiedly. Every day we see women suffering from its pernicious effects. It enhances the perils of maternity and inflicts on the world inferior children. "The strength of posterity is, in the womanly sense, of the present. All that we do and think, even to the dressing of our bodies, generations are powerless to eradicate."

It is just at the time of the greatest functional development that the greatest influence for good or evil will be wielded by the guardians of the girl. If the corset is put on her before she is fully developed, that development is interfered with, and evil results, which, in a great number of women, makes them invalids, or at any rate less useful. The floating ribs are constricted, making pressure upon the liver, often leaving indentations, seen in post mortems, displacing all the abdominal and pelvic viscera. Dr. R. L. Dickinson, of Brooklyn, N. Y., says the pelvic floor is bulged downward one-third of an inch by tight lacing. The effect on the thoractic organs is generally less marked than

on the abdominal and pelvic, but it is bad. Thoracic breathing, instead of thoracic and abdominal, is due to the corset. The capacity for expansion of the chest is diminished one-fifth. The stiff, unyielding stays hold the body stiff and straight, when it should be supple and pliant; the numerous joints of the spinal column show that nature did not intend the body to be rigid. The muscles of the trunk become weakened from non-use. Frequently when we advise a woman to leave off her corset, she exclaims, "Impossible! I feel like I was falling to pieces! I can't sit up!" This is a proof that she should leave it off and the muscle be strengthened by proper exercise.

The heavy unsupported skirts, dragging on the hips and abdomen, are very injurious. The evil consequences are only a little less than those arising from the corset. The clothing should all be supported from the shoulder; if the corset is not worn, the bands are made tight to keep them in place; supported from the shoulder this is obviated.

It has been said that the custom of wearing the pantaloons tightly buttoned around the waist was so injurious to the hardy Russian soldiers that a law was enacted compelling them to wear suspenders.

Little need be said about high-heeled shoes, as fashion has put them aside for the common-sense and spring-heeled. Many aches and pains can be laid to high heels, distorting the body relations.

The clothing should be as light as consistent with warmth. With the heart, lungs and digestive organs compressed and displaced, health is impossible. Attention to this matter of clothing alone would, I believe, work a reform in woman's health as nothing else has done.

From the twelfth to the sixteenth year is the most critical period of a girl's life; it is then that the greatest change takes place in her form and constitution; it is then that external forces are most brought to bear on her; it is then that she most requires freedom of heart, lungs, digestive organs, nerves and muscles. Nerve force is at a high tension and should be guided to the development of those organs which until now have been in an infantile state. Instead of binding her into tight clothing, let her be as free as the birds of the air. Give her bone, muscle and viscera an opportunity to develop.

At this age, when this change is taking place, when the girl is passing into womanhood, she is sent to a boarding school. Her studies engage her time and energy; her mental culture is carried on at the expense of her physical—there is no nerve force left to complete this development. The growth of the pelvic organs become arrested, deformities and displacements occur, menstruation is delayed or made irregular and painful: nervous symptoms develop, and a physical wreck is often the result. There are few physicians who have not been called to treat patients with the following history: A girl 15 or 16 years old; menses appeared a few times; was sent to a boarding school; in a short time the menstruation ceased; became nervous; had headache frequently;

slept poorly; felt worn-out and tired; lost color; became of a greenish ghastly hue; appeared bloated; blood deficient in hæmatocytes. What is the trouble? Chlorosis. The cause? There is something wrong with the sympathetic nervous system; growth is arrrested, the pelvic organs cease to perform their functions. Months of treatment will be required to restore the girl to health. Of course it is not always the school girl who suffers thus, but any girl at this age is liable to trouble if the emotions are long continued unpleasantly excited, as great grief, great fear suddenly excited, depressing surroundings, nostalgia, excessive mental labor, deprivation of pure air, exercise and light. I have seen the disease most frequently in school girls and factory girls whose surroundings were miserable, and who work all day in close, dirty rooms, with no exercise except to hurry to their meals and back, with no mental diversions whatever.

There should be a law forbidding children under 15 years of age to work in factories. Girls should not be sent to boarding schools until they are fully developed and their functions are thoroughly established. Too many of our schools are like machines. All classes of girls are treated alike—the delicate striving with the strong. The delicate girl has an indifference to physical effort, and finds that for the time her weakness of body does not interfere with her brain work; she sticks closer and closer to her studies and shrinks more and more from physical exercise. There is no doubt as to the result.

Give not only these delicate girls, but all girls, exercise which will ensure strong and shapely limbs, chests deep, full and strong, which will strengthen the muscles of the back and abdomen. Begin these exercises mildly at first, progressing gradually, correcting each fault and carrying on this development not only through the school days, but through life. The process of breaking down and building up goes on day by day, hence this training should be daily. Let this school-days' training be done under a qualified teacher and the benefits will be felt, not by the present generation only, but by their descendants also.

These principles may be applied to women later in life who have not properly developed bodies. Much can be done to strengthen weak parts, to straighten crooked spines and stooped shoulders.

This matter of physical education should not be delayed. It should be compulsory in every school. If the teachers do not know the exercises, they should learn them. There are in this country gymnasiums where teachers in this important branch of education are taught, such as the Fifth Avenue Gymnasium, in New York, in which Dr. Sargent works. He is a strict disciplinarian and his pupils are not permitted to take the exercises as they please, as is done in the most of our schools. Such teachers as Dr. Sargent would do a great work towards the physical development of the race, and many young physicians would do well to enter into this work in their community. In

London the public schools have a superintendent of physical education appointed by the school board.

There are several systems of physical culture. The Swedish system is becoming quite popular. It was first formally used in 1813 in a State institution in Stockholm. The part of it now used in educational institutions is called pedagogical or educational gymnastics. From the endeavors to benefit those who were below the average health, what is called medical gymnastics arose. The orthopœdic surgeons, neurologists and gynæcologists have introduced it to some extent in medical practice

The system proceeds upon the theory that, with the proper development of the fundamental functions (those of the heart and lungs), the development of the muscles must necessarily follow.

The Delsarte school of physical culture has its recommendations. By this system almost every muscle in the body can be exercised. One of the best exercises is the swinging of the Indian clubs - all the muscles of the upper extremity with those of the back and chest are brought into use by the different evolutions gone through with in their use. These simple exercises with Indian clubs or dumb bells, practiced 15 minutes twice a day will in a short time show favorable results.

Walking is one of the best and simplest of exercises at our command All these exercises must be done with a purpose to be gained

We should not neglect to see that there is plenty of fresh air given—500 600 cubic feet of air to each person. Ventilation is thought little of, especially among the poorer classes, where they sleep in crowded apartments and go out of doors for fresh air, dreading *night* air as if it were poisonous.

I am anxious to see the time come when physical culture will be considered as much a branch of education as history or mathematics, and it lies with physicians to make it so. It is our duty to present this subject, in all its phases, to our patrons, and have it introduced in all schools as a special branch of education.

DISCUSSION.

Dr. Jones thought that a vote of thanks was due the author for the painstaking preparation shown in the paper. He said that she had touched the keynote when she selected physical training for her subject, and especially the training of her own sex. He spoke of the need of a steady hand to guide a girl just entering womanhood, when the functional activities begin to assert themselves. She needs plenty of exercise and freedom of movement. Her body must not be so restricted that the vital organs cannot perform their functions.

PTOMAINE POISONING AND GASTRO-INTESTINAL ANTISEPSIS.

By J. R. Irwin, M.D., Croft, N. C.

The title of this paper (Ptomaine Poisoning and Gastro-Intestinal Antisepsis) may savor somewhat of the "*Levator Labii Superioris Alaque Nasi*" style, but with the difference, the latter term is simply a name for a small, trivial muscle of the face, and the former expresses a subject in medicine than which there is none more important and none demands more serious study.

Reports, not only in the medical journals, but also in the newspapers, of instances where several members of a family or a number of individuals at some feast became suddenly and simultaneously ill, awakened professional interest in an endeavor to discover the cause. The pathological chemist and bacteriologist have elucidated this subject to a considerable extent, and through the investigations of such men as Selmi, Pasteur, Bouchard and our own countryman, Victor Vaughn, the causes of such cases have been traced to poisonous ptomaines, which, according to Gould's definition, is "a class of nitrogenous alkaloidal bases, formed during the putrefaction of organic matter," and, since putrefaction is dependent upon micro organisms, the formation of ptomaines is also dependent upon them.

Formerly symptoms and anatomical lesions were much studied, but now the origin of disease is the absorbing theme of study and discussion. When it was discovered that germs, by their growth, produce chemical poisons, and that the absorption of these is followed by the symptoms of disease, the science of medicine made rapid strides forward in the study of the etiology of disease and in indicating a rational treatment of it, and when the poisons (ptomaines) shall have been sufficiently studied, we will be able to detect their presence in the body by their effects, just like we recognize the action of morphine by examining the pupil.

Raspail, of France, half a century ago, spoke of the microbe as the cause of influenza, and proclaimed to the world the germ theory of disease, but was laughed at and only comparatively recently has the role which germs play in disease ceased to be a theory, and, as you all well know, became a fact as assuredly demonstrated as any in our science.

While physicians are not expected to be trained micro-biologists, they are, or should be, willing to accept their discoveries. They have taught us that nature has settled microbes around us in as great prodigality as she has furnished the circumstances of their development and multiplication. In health they can do us no harm, but whenever our vitality is weakened our means of defense diminishes. It has been said that "nutrition is life," therefore disturbances of nutrition are antecedent to infection, and thus we can see that disease

is the result of two different pathogenic processes, and a third factor may enter or become associated in inducing disease—nerve reaction.

This last factor would not in itself produce infection, but only makes infection possible by modifying nutrition so as to develop a chemical medium favorable to the cultivation of organisms Thus we see the causes of diseases are numerous, but to attack and overcome us, they must be combined or associated. Then, if many diseases are produced by microbes, which act only by means of deterioration of the health from various pathogenic processes, the microbes are not only to be combatted, but the forces of the organism are to be sustained and reinforced to resist their invasion, and the equilibrium of health maintained or restored, for diseases may be developed by the increase of normal or the production of abnormal matter.

It has been further ascertained that the peculiar poison formed will depend upon the peculiar bacterium present, nature of material acted on and condition of the individual. When we remember the multiform changes that take place in the gastro-intestinal canal, changes of a chemical, putrefactive and furmentative nature, it is not unreasonable to suppose that these ptomaines, substances of a highly complex nature, would be formed, and when absorbed would affect the vitality of the individual.

Pasteur has isolated as many as seventeen microbes in the mouth, another investigator five species of bacteria from the normal intestinal mucus, while an enormous number of micro-organisms are known to exist in the large intestine and feces, and it is regarded as certain that they contribute to the processes of fermentation and decomposition which go on in the alimentary canal.

Auto-intoxication, or self-poisoning is prevented by the activity of the excretory organs, for in normal conditions there is material for poisoning, and if then material is accidentally more abundant, though the excretories are functionally free, it may yet accumulate in the blood and produce symptoms. But the organism has still another protection in the liver, which arrests or transforms toxic substances, which originate in the intestinal canal. Roger has shown by experiment that alcoholic extract of rotten meat is twice less toxic when injected into the portal vein than when introduced into the general circulation, or extracts of intestinal contents kill animals deprived of the liver much more readily and in much smaller doses. Still another protection is peristaltic action, hurrying on the intestinal contents, and thus limiting absorption.

The toxicity of intestinal matter has been proven, the intensity of which is in proportion to the multiplication of bacteria and the consequent amount of poison produced. A portion of these products is absorbed and eliminated, but if elimination is prevented by a disturbance of health, then poisoning of the system results. The greater part is eliminated by the stools, hence the indication for the relief of constipation in all conditions and diseases.

The blood is the reservoir into which the absorbed products are poured and

by which they are transported, whether they are transformed albuminoid substances, alkaloidal poisons, intestinal toxic substances arising from putrefactions, or poisons resulting from the death of cells of the tissues. That it is the carrier, is proven by the fact that they are all eliminated by organs in which they are not formed. Putrefaction is one great source of intoxication for the blood, not only that which arises from the imperfect metamorphosis of digested matter, but that which the presence of micro-organisms in the intestinal canal maintains. Here are found excellent culture media, and conditions favorable to the elaboration of poisons. The peptones are here in a tube at a constant temperature. The canal is open exteriorly, and putrefactive agents are taken in with the food; respiration carries dust loaded with bacteria into the pharynx, which are swelled. Digestion could never go on normally except for the juice the stomach secretes, which is opposed to fermentation. But it only feebly opposes it in the small intestine or the large; thus we find them capable of passing the products of putrefaction into the blood, and these putrid substances are toxic.

Anto intoxication accounts for many of the diseases we daily meet. Brunton is of the opinion that the condition which we term "biliousness," and which is most likely to occur in those who eat largely of proteids, is due to the formation of poisonous alkaloids, and calomel, the old time-honored remedy in these conditions, removes the morbid condition of the mucous membrane of the stomach by its local action due to its sedative and antiseptic effects, and prevents or lessens the poisoning of the system by its eliminative action. It is also claimed by some that ordinary colds are best explained by the supposition that certain effete matters, which are normally excreted by the skin are retained. This is borne out by the effects on the nervous system, and the fact that the only successful methods of treatment are essentially eliminative. Summer diarrhœa in children is due to a fermentative principle of "septic yeast," as Holt expresses it, which, with the heat of summer, together with improper diet and surroundings, will initiate the disease, and the administration of antiseptic remedies has superseded the old routine practice of administering astringents and opiates. Many other diseases that admit of this explanation might be mentioned in this connection, but I hurry on to treatment.

Now, in regard to the treatment of diseases produced by the presence of micro organism, and the poisons resulting from their multiplication in the gastro intestinal canal. The treatment consists in attempts to destroy these, which have already found lodgment within the body, or, failing in this, to antagonize the effects of the poison and to maintain life until the germ, weakened by successive generations of growth, or poisoned by its own products, ceases to manifest its ill-effects and terminates by self-limitation Much has been said and written in regard to antisepsis and antiseptics, more especially in connection with the treatment of wounds, accidental and surgical. In the ever-

widening knowledge of our art, the relationship and the inter-blending of medicine and surgery become more intimate. While it is held in belief that no competent surgeon would refuse to grant suffering humanity everywhere the benefits arising from antiseptic surgery, no physician should refuse or deny his patients the benefits of internal or gastro intestinal antiseptic treatment. Surgeons are in advance of physicians in realizing the meaning of the word cleanliness, and in being able to make the practical application, to the great benefit of their patients.

If the role germs play in disease is no longer a disputed fact, then the treatment of the diseases produced by them becomes more rational, and should be attended with better results, and no one who studies the therapeutics of fifteen or twenty years ago, can doubt the reality of an extraordinary improvement.

If we are to make cleanliness an important factor in our treatment of these diseases of gastro-intestinal origin, we must commence our antiseptic treatment in the mouth. The saliva is mixed with other fluids coming from without, those regurgitated into it from below, and the secretions from mucous and associated glands, together with particles of food, cast-off epithelial cells and specmens of all the pathogenic microbes; so that the indication here is plain for the frequent use of antiseptic washes, that may also be used as gargles. By this means, too often not employed at all in the oral cavity, the introduction of bacteria, unhealthy mucus and sordes into the stomach is limited.

The stomach constitutes a barrier to the invasion of microbes, owing to the antiseptic effect of the gastric juice. But if the gastric juice does not contain the normal amount and proper quality of hydrochloric acid, upon which its antiseptic action depends, trouble ensues, which must be counteracted by antiseptic treatment. The physiological importance of the sto nach will be realized if we remember that it introduces into the organism all the material, solid and liquid, except oxygen.

As the microbes that swarm into the intestine must have reached it through the stomach, antisepsis of this viscus must be produced. If there is also retention and stasis of material in the stomach in which fermentations may occur, mechanical means may be employed, as vomiting and washing out the stomach. The old treatment, vomiting and purging, was a real cleansing of the tube, and an effectual one, in the robust constitution of former days. Lavage is a means of obtaining or assisting the antiseptic treatment of the stomach, too little appreciated and infrequently used. It removes the mucus which assists fermentation, and the remains of previous digestions, which are perhaps undergoing putrefaction, and if there is inflammation of the gastric mucous membrane and hot water is used, it relieves it. The method that will accomplish these most safely, quickly and pleasantly, is undoubtedly best. Water is the universal solvent and cleansing agent, and heat is nature's antiseptic and germicide. Then what more rational than the free use of hot water as a detergent and

cleansing agent for the stomach? The mucous membrane of the stomach is not well supplied with sentient nerves like the skin, and will tolerate a degree of heat, without discomfort, that would be unbearable to the skin. It is often advantageous to incorporate in the water some of the well-known chemical antiseptics or germicides. The operation is simple and may be done in case of infants, Dr. Seibert, of New York, having washed out the stomach of his own child, three days old, successfully, and with the best of results. Sometimes the physician may meet with opposition to this treatment in young children on the part of the mother, but persuasion, firmness and explanation of the expected results usually obtain her consent.

Intestinal Antisepsis.—Usually a simultaneous gastric and intestinal antisepsis is aimed at, yet that of the intestine is decidedly the more important, for it is here that self-poisoning mostly occurs, not only by the toxic products brought there by the secretions, but also by those formed there. Here the mechanical means already mentioned, purgation and washing, is of undoubted benefit, and in the irrigation of the intestine plain boiled or medicated waters may be used, as in the treatment of the stomach.

Very little has been said in regard to the particular remedies. They are very numerous, and some practitioners prefer one, some another. Naphthol is considered by Bouchard the best antiseptic in gastric troubles. Its action begins in the stomach and continues in the intestine, and is therefore a gastro-intestinal antiseptic. It is not modified by the gastric juice. When it reaches the intestine it breaks up into napthol, etc., and benzoic acid, and is not contra-indicated in diseases of the liver or kidneys like betol, which contains salicylic acid, and is poisonous in these conditions. It may be given in 7½ gr. doses, frequently repeated. Where there is diarrhœa, salicylate of bismuth may be added if no contra-indication to the salicylic acid exists.

While the internal antiseptic treatment promises and has accomplished so much, it should be supplemented according to indications by other remedies. The patient cannot be ignored in the case, or the dead germs and dead patient may be buried together. This prostration, due to exhaustion and depression by poisoning of the nerve-centres, is best met by strychnine, which is almost a specific for it. By its use the circulation and innervation are strengthened and vitality economized, and the patient may be tided over the critical period. It does not interfere with other drugs that may be employed to combat other symptoms, such as fever, etc. If profuse perspiration occurs, also tending to further exhaustion of the patient, atropine may be given in combination with strychnine, which will check the profuse sweating and also allay the irritability of the central nervous system. For these conditions, from a physiological and therapeutical standpoint, these remedies are indicated.

DISCUSSION.

Dr. Booth said that, although a great deal of good was derived from hearing the papers read, yet much more was lost by not discussing them. The object of having the papers read was to furnish subjects for discussion. He said that there must be two sets of circumstances before these diseases can develop—the first, the presence of these organisms, and the other, suitable soil for their development (a lowered vitality of the system). But he said that this was not always the case, and told an instance of the physician, wife and children, all being stricken down simultaneously from eating ice-cream which had been left over from the day before. All the members were of healthy constitutions. He deprecated the practice of those who permitted meats to become tainted before being eaten.

Dr. Payne congratulated the author upon the valuable paper. He said that it must be full of meaning to any one as they become versed in the study of germs. A great many diseases originate in our own bodies. He believed that many cases of chlorosis are caused by germ infection of the alimentary canal, resulting from constipation. The difficulty seemed to be the inability to obtain an antiseptic condition. He had often heard it asserted that it is no trouble to wash out a baby's stomach, and that a tube can easily be passed up in the colon; but it gave him great difficulty, and he wanted to know why.

Dr. Faison had had much of the same trouble as Dr. Payne. Ever after introducing the water into the stomach he had not met with the expected results. His plan was to try to disinfect everything that goes into the stomach, to get rid of the germs by purging the bowels with small doses of calomel. He regarded these alimentary inflammations as the starting point of one of the most serious diseases of childhood—rickets. Not only should the physician hasten to relieve the trouble at that time, but he should endeavor to prevent the occurrence of rickets. He withdrew all nourishment for a few hours and used plenty of pure water.

Dr. Gibbon said that his experience, though very limited, in regard to the irrigation of the intestine both in adults and in children had been that it is a decided benefit. He told a case of a child about two years old who was suffering with a violent attack of dysentery. The actions were about twenty or thirty a day. Rather late in the disease he irrigated the intestines, and after the irrigation the child did not have an action in four hours. He said that other cases could be given in which decided benefits were shown from the use of this practice. By irrigation of the intestines the fermented material is removed, and then, by rendering everything that goes into the stomach antiseptic, the case may be relieved.

HYDROTHERAPY.

By R. L. Gibbon, M.D., Charlotte, N. C.

Water, fortunately for all living organisms, is so common an object upon this planet of ours, that a great portion of the public, including not a few medical men, are disposed to look with a sort of contempt upon any effort to make use of it as an independent therapeutic agent, capable of producing precise physiological effects.

In fact, many of our fellow-citizens show such marked neglect of its employment as a hygienic and sanitary agent, that it is not surprising they should be unappreciative of its medicinal effects. That water does possess such curative properties is shown by the recorded experience of the most eminent physicians of ancient and modern times

An exhaustive study of its physiological action has within late years placed water in the list with other rational therapeutic agents, and largely removed the obloquy of being a purely empirical remedy.

Any one studying for the first time the medical history of water would be struck by the immense quantity of literature at his disposal, extending back to the earliest medical writings. Hypocrates, Galen, Census, Paraselsus and other worthies of remote periods, too numerous to mention, were enthusiastic advocates of the water treatment; while in every country and in almost every civilized country this agent has formed a very important part of therapeutics, whether in the hands of ignorant quacks, or used by the most distinguished of the regular profession.

As has been well remarked by the great apostle of Hydrotherapy in our own country, no other remedy illustrates so well the changes, one might say the fashions, of medical practice, for, while at one time we find the medicinal value of this remedy receiving the highest professional recognition, at another period the practice lapses into oblivion, only to again be brought forward by some enthusiastic advocate.

There can be but little doubt that in the past much of the opposition the water-treatment received at the hands of the medical profession originated in its almost entire monopoly by charlatans, or at least uneducated persons. To this day, in fact, the term hydropathy savors of quackery.

The most notorious, and by far the most successful, of the hydropaths was Priessnitz, an uneducated peasant, who flourished about the year 1840. The history of this man is almost without a parallel. Beginning in a small way, the fame of his cures spread far and wide, and it has been stated that as many as 75,000 people came to him for treatment during a period of 20 years, and of this vast number only 39 died. The government built roads to accommo-

date the multitudes of sick people who flocked to his institution, and an appreciative public erected monuments commemorative of his services, while the man himself died possessed of several millions. We read of few or no instances of similar honors bestowed upon a member of the regular profession. A due examination of Priessnitzs' methods will disclose great ingenuity in the mechanical arrangement and application of his remedy, while he was very far from neglecting such auxiliaries as diet, exercise, etc.

The water treatment did not always have such successful exponents among the irregulars, however, and the majority were very much after the style of Dr. Sagrado, spoken of in "Gil Blas," whose sole method of treatment in all diseases, in whatever stage of development, consisted of the free abstraction of blood and an unlimited use of warm water internally. Under this antiphlogistic plan, the Doctor himself admits that recovery of the patients was excessively rare.

The best known of the earlier English writers on the subject of Hydrotherapy is James Currie, the biographer of the poet Burns. His book entitled "Currie on Water," appeared about the latter part of the last century, and at that time attracted considerable attention. It may be read with profit, even at this day, for, in addition to the scientific interest which attaches to the work, the style of composition is equaled by few medical writers. Where, for instance, can be found a more forcible or beautiful sentence than this: "The most eminent physicians, in every period of the world, impatient of observing and delineating, have been eager to explain and even to systematize, and the science of life owes its corruption more to the misapplication of learning than even to the dreams of superstition." "To the weak and ignorant, presumption is as natural as doubt is intolerable, and with such belief is almost always a creation of the imagination."

It would be well, in attempting to arrive at a correct judgment of the place hydrotherapy is to occupy in therapeutics, to carefully base our conclusions upon the facts of the case, and not on the mere creations of our fancy or prejudices.

Currie used salt water by preference, which was dashed upon the patients from buckets, and, while this form of treatment may appear to us crude and decidedly heroic, it seems to have given very satisfactory results in his hands, especially in a number of thyphus and thypoid fever cases reported in his book. The practice does not seem to have attained very great popularity, however, and nothing important was done in the matter, until "Brand, of Stettin," published, in 1861, his remarkable statistics on the cold bath treatment of typhoid fever.

Physiological Action.—A formal and minute discussion of the physiological action of water used externally and internally would far exceed the limita-

tion of this paper, and it will only be necessary to mention, briefly, some of the more prominent physiological effects.

Most of us are familiar with the principal action of water taken internally; besides the effect upon the bodily temperature, considerable quantities of water taken into the stomach exercise reflex influence upon the heart and blood vessels, which varies with the temperature of the water used. Cold water, for instance, very perceptibly increases the blood pressure, while warm water has an entirely contrary effect and lowers the tension in the vessels. The free imbibition of water stimulates glandular secretion, increases the urinary flow, and also, it is said, the solid constituents of the urine.

The essential physiological effects of water, externally applied, vary with the temperature and the method of application. Obviously, also, this effect must be materially influenced by the duration of the application. On this account we have in water a very flexible remedy, capable of producing, under different circumstances, entirely opposite results.

The two extremes of temperature meet, and excessive cold, like excessive heat, is painful; both are nerve irritants and productive of lowered vitality, resulting in death when carried beyond certain limits. Clinical experience and the rapidity of the effect produced, show that thermic irritants exert their influence through the nervous system This fact, as we shall see, is a matter of some importance.

Cold applied externally produces a contraction of the superficial blood vessels, to be followed, in a short time, by capillary dilation and an increased amount of blood; the contraction and dilation in the veins being less rapid than similar changes in the capillaries, it follows that there is an increased resistance to be overcome by the blood-current, resulting directly in temporary congestion; while internal and remote parts receive an unusual amount of blood, under increased pressure, from the establishment of a collateral circulation. It is in this physiological action of water, thus applied, that many of its therapeutic effects are explained. This unusual amount of blood circulating with increased tension through internal organs must necessarily influence in the most favorable manner conditions characterized by passive congestion, or a languid circulation with the consequent accumulation of effete material.

The difference in the effects of hot and cold water is found in the fact that cold produces an *active* hyperæmia with a relaxation of the vessel.

It is a common fallacy with those who have made no study of the effects of heat and cold upon bodily temperature, to suppose a *cold bath* will reduce a fever temperature more rapidly and decidedly than a warm or hot bath. This supposition, which appears at first sight natural, does not seem to be in accordance with clinical experience. Cold applications undoubtedly cool the surface, but the internal temperature is much less influenced than by a moderately warm bath. This important fact has been mentioned by Currie, who states that

in his experience the temperature was more surely reduced by warm affusions. It is now admitted by scientific writers on this subject that the colder the bath the less intense its power of reducing internal temperature. An explanation of this apparently anomalous fact is found in the compensatory powers of the human organism by which it is enabled to resist the temperature effects of external agencies, and our ability to affect *directly* the internal temperature of the body is very slight.

It should be remembered in making observations on this point, that the thermometer should be used in the rectum.

Technique —While hydrotherapy has been liberated from the trammels of useless and perplexing methods, it is absolutely essential for the attainment of success in its use that we observe with accuracy and precision such rules as an understanding of the physiological action points out. To merely sprinkle a fever patient with cold water, until the temperature falls, or to attempt to irrigate the intestines in the same way one would give an anema, is to ignore *in toto* the ordinary precautions which experience has shown to be necessary. Haphazard methods of procedure are rarely successful anywhere, and certainly not in hydrotherapy.

While this knowledge of technique is so important for the successful employment of water in diseases, I will not consume your time by attempting to describe in detail the various forms of application, such as the wet pack, the Sitz bath, the douche and numerous others. It will only be necessary for the purpose of this paper to fully describe the cold bath as employed by Brand. This is perhaps the most important of all the external uses of water, and as it threatens to become the standard treatment of typhoid fever, it is well to have a clear idea of the manner of procedure.

It is necessary to remember in this connection that a prompt reaction of the patient after the bath is of prime importance: should the organism fail to respond favorably, the application is more likely to do harm than good. The most certain means at our command for bringing about this reaction consists in friction to the surface of the body. This simple precaution appears, however, to have been often neglected, when every other detail of the treatment was carried out.

Brand's method of giving the bath, as it is described in some of our latest text-books, is about as follows: Whenever the temperature reaches a certain point, say 102.5° F., the patient is stripped, wrapped in a sheet and carefully placed in the bath, the water being at a temperature of 65° or 70° F. Cold water is poured over his head, as he gets into the tub, to diminish the shock, and he is then submerged to the neck. During the whole period of his immersion he is briskly rubbed, and cold water poured over his head at intervals. He is then taken out, wrapped in a sheet without drying and covered with blankets. It is customary to give a stimulant before placing the patient in the

water. In private practice the water at the beginning of the bath is often used warmer than in the strict Brand bath, being afterwards cooled to the requisite degree by the additions of ice or cold water. Brand furthermore insists that the results of this treatment in typhoid fever are far better where systematic bathing is begun prior to the fifth day of the disease, even going so far as to declare that every case will recover where the rule of early bathing is carried out.

In confirmation of this statement he reports the astonishing number of 2,150 cases treated before the fifth day, in which not a death occurred. Such phenominal results command the attention of the civilized world, and, while there is a tendency to question the accuracy and fairness of foreign statistics, I am not aware that even the most skeptical have succeeded in discrediting the figures given above. Brand's latest statistics on this question are equally startling—of 1,227 cases treated by himself and several associates, only 12 died, being a mortality of 1 p. c. All of the fatal cases received treatment after the fifth day of the disease.

While other observers, especially in England and America, can show no results comparable with those of Brand, the hospital reports where this plan of treatment is carried out with more or less completeness present with very general uniformity, a greatly decreased mortality rate.

At the German Hospital in Philadelphia, Dr. J. C. Wilson reports 300 cases of enteric fever treated with the cold bath during the three years ending January 1st, 1894. Of this number 20 proved fatal, being a death-rate of 6.6 p c. The last report, that for 1893, is based upon 74 cases, of which 8 died, giving a mortality of 10.8 p. c. Here, also, the fatal cases were also received into the hospital after the stretegic fifth day.

By an analysis of his cases Dr. Wilson thinks the dictum of Brand, that none of the cases in which the treatment is instituted prior to the fifth day are likely to terminate fatally, is partially borne out.

In the last report of the Johns Hopkins Hospital on typhoid fever, Dr. Wm. Osler places the mortality, since the introduction of bath treatment, at 7.1 p. c. It may not be without interest to give in detail the method of using the bath in this institution:

"1. *Details of Method.*—The patient receives a bath of from 65° to 70° every third hour, when the temperature, taken in the rectum, registers 102.5° or over. The temperature of the bath varies somewhat with its antipyretic influence; thus, when the fever is very slightly reduced by the bath at 70°, a lower temperature is employed. The temperature is taken every two hours in the rectum, and if it rises above the point mentioned, the bath is given. The length of time the patient remains in it varies somewhat, but, unless otherwise directed, the bath is of 20 minutes duration. The bath tub, of which there are several light portable forms, is wheeled to the side of the bed, around which a

ward-screen is placed. In all instances the patient is lifted from the bed into the bath. There is an arrangement for the support of the back of the patient, either a comfortable padded or sloping platform, or a properly adapted water-cushion. The water is deep enough to entirely cover the chest. If thought necessary, the patient receives a small quantity of whiskey or a hot drink of some kind. He is lifted into the bath, covered with a sheet or with a folded napkin around the loins. A cloth wrung out of ice-water is placed upon the head, and with a sponge the head and face are kept bathed with the same water. These cold effusions to the head are very important, particularly in cases of marked nervous symptoms. The limbs and trunk are systematically rubbed either with the hand of the nurse or, what is more convenient, with a cloth or with one of the forms of bath-rubbers now in common use. While the patient is in the bath the bed is prepared for his reception with a rubber sheet, a blanket, and over this an old linen sheet. The patient is lifted out, and, in a protracted case with feeble heart, is dried at once and wrapped in a blanket. In other instances the patient is tucked carefully in a sheet for from five to ten minutes and covered with the blanket before he is thoroughly dried. The patient is given a hot drink, usually whiskey and water. Half an hour after the bath the temperature is taken and recorded. If at the end of three hours the temperature is again above 102.5°, the bath is repeated. During the bath the patient is carefully watched. Though at first the sensation may be rather agreeable, within five or six minutes the patient usually complains of feeling cold and becomes restless. In a majority of instances shivering begins and the patient's teeth chatter and the extremeties and face become a little blue. Systematic frictions do much to counteract shiver and the tendency to cyanosis. Feeble patients are carefully watched, and the duration of the bath is reduced when there are signs of increasing weakness."

It would be an exceedingly simple matter to quote to you a much longer list of figures in support of the water-treatment of typhoid fever, for, as Dr. Wilson has remarked: "Certainly the literature of medicine shows no aggregation of statistics in regard to the treatment of any other disease than has reached such proportions and in which the treatment has been carried on with the same adherence to rule." The reports already given, however, will suffice to demonstrate the advantages of the Brand treatment as regards the saving of life, and we now hasten to consider some other phases of the subject.

It may as well be stated here that the antipyretic effect of the cold bath does not explain entirely the favorable influence it exerts upon the course of the disease, important as that effect may seem. Those who are most competent to judge declare that antipyresis is a secondary consideration, and that the bath produces its beneficial effect by the stimulating and refreshing action upon the nervous system. High temperature, then, does not constitute the sole indication for using the bath, nor can its reduction be the chief cause of a lessened

mortality rate. Were such the case, we have at our command a far less troublesome means of accomplishing the same result in the antipyretic drugs, yet the employment of such remedies as antipyrin and phenacetin has done very little to improve the prognosis of typhoid fever. Some one has said that they only enable the patient to die with a nearly normal temperature.

In Pepper's late work on Practice may be found the following regarding the use of antipyretic drugs: "It should be borne in mind that it is the *patient*, and not the fever, that we are called upon to treat. When used at all, the dose should be small. Ehrlich and some others have tested the plan of keeping the temperature constantly low by the continuous use of small doses of these drugs, and the results have been satisfactory neither to the duration of the disease nor as regards mortality."

A drug which has only lately been added to the list of antipyretic remedies is guaiacol, which need only be painted over the chest or abdomen, 20 or 30 drops at a time, in order to reduce temperature in a most remarkable manner. Of this recent addition to our force, the *Therapeutic Gazette* remarks that however favorable the action of guaiacol may prove in lowering fever, there is no prospect that it can ever take the place of the cold bath.

It is evident, then, that the beneficial effects of the bath-treatment does not depend alone upon its power to reduce fever. All observers are agreed that cases treated by the Brand method have a marked absence of nervous symptoms; they do not have the hebitude, delirium and similar nervous disturbances so often seen in typical typhoid conditions. The tongue is apt to be clean, the appetite good and catrrrhal trouble of the stomach and intestines not often present. Dr. Osler, who cannot be accused of being an enthusiast in the use of the Brand treatment, gives the following as the general effect of the bath in these cases: "The cold bath acts, in a majority of instances, as a tonic to the circulatory system. Within five or ten minutes the pulse of a patient in the bath becomes smaller and the tension is increased. It may, indeed, become extremely small and hard, a change which is particularly noticeable in cases which present the relaxed, dicrotic pulse. After the patient is put to bed and is shivering and blue from the effects of the bath, the pulse may be even difficult to feel. The frequency may be at this time very considerably reduced. The stimulating tonic effect is particularly seen in the early stage, and it seems to be as much upon the peripherial arterial system as upon the heart itself. In the latter stages of the disease, with feeble heart-action and pulse above 120, a tonic action is not so often observed, and the reaction from the bath frequently very slow. Collapse symptoms were present in five of our cases and necessitated the abandonment of the baths, usually, for a time.

"On the nervous system the most striking effects are witnessed. The headache is rlieved; delirium, stupor and coma are rarely seen; the patient sleeps well and naturally and tremor is a rare occurrence. Of course there is not a

complete absence of all the grave nervous phenomena, even when the cases are bathed from the earliest period.

"Thirteen patients presented marked nervous features, but this is a very small number in the whole series. Certainly the symptoms to which the term "typhoid" is applied are not nearly so frequent under the cold-bath treatment. Thus, at the time of writing (October 20th) there are 28 cases of typhoid fever in the medical wards, not one of whom has, or has had, delirium or tremor.

"On the respiratory system the baths exercise no special influence. They certainly do not aggravate the preliminary bronchitis, and the idea that they are liable to induce pneumonia or pleurisy is entirely groundless.

"Patients treated with the cold bath appear less often to have the dry, brown tongue. Gastric irritation is not so frequent. Diarrhœa and tympanites are so variable symptoms in different epidemics that it is difficult to say whether they are specially influenced by the baths, but, comparing the series treated with and without baths, they certainly appear to have a good effect."

Compared with other treatments of typhoid fever, the superiority of the Brand method is most apparent; however favorable and satisfactory may have been our own individual experience without the bath, we must admit that no other means at our disposal for handling this disease has ever given like results in an equal number of cases.

"A remarkable and instructive fact," says Dr. Wilson, "is that the statistics from various sources and from relatively large and small collections of cases, show a mortality percentage that is, as a rule, nearly constant, so that we may now regard it as demonstrated that the death-rate of enteric fever under the treatment of Brand, instituted early in the attack and rigorously carried out, does not range beyond 6 p. c. or 7 p c., while the general statistics show a mortality under various other forms of treatment, ranging from 15 p. c., to 25 p. c."

	No. Cases.	Death-rate.
Expectant method	11,124	21. p. c.
Dr. Murchison's collection.....	27,051	17.45 "
Jaccoud.....	80,140	19.23 "

The English Army statistics for six years ending in 1877 show a mortality of 32 p. c.

Osler says: "No drug known shortens by a day the course of typhoid fever; no method of specific treatment or of antisepsis of the bowels has yet passed beyond the stage of primary laudation."

With such apparently overwhelming proofs in its favor, what explanation can be given for the tardy adoption of the cold bath into general practice? If, as has been pointed out, the systematic employment of the bath in typhoid fever means the saving of 15 or 20 lives in every 100 cases, are we not culpably careless and indifferent when we do not give our patients this additional chance for life?

As would naturally be supposed, there are some very potent reasons why the ordinary medical man. and especially the country doctor, has not taken up the water treatment of typhoid fever in all its details, with the alacrity which the results would seem imperatively to demand. In the first place, to take a patient bodily from his warm bed and dip him in a tub of cold water every three hours, is radically opposed to the preconceived ideas both of the patient and his doctor. The one is very likely violent in his opposition, and the other, being perhaps convinced against his will that Brand's method is the best of all treatments, does not insist, and so the case is conducted upon the "deadly expectant" plan. Then we must admit that the treatment is exceedingly burdensome, requiring extra help, which, in the case of the ordinary physician, would have to be separately instructed for each patient treated. Even in a hospital such as Johns Hopkins', with a facility for attending and carrying out the treatment, Osler remarks that "the cold water treatment, carried out in all its details, is exceedingly onerous, particularly if there be many cases in the hospital at the same time. It is, moreover, to a very considerable majority of patients, intensely disagreeable, and at least nine out of ten have complained bitterly of it. So harsh does it often seem that I would not suffer it in my wards for a day did I not feel sure that, under its systematic use, the death-rate in the disease was definitely lowered."

So strong is the opposition to Brand's method in private practice that many medical attendants employ the bath at a much higher temperature than that prescribed by its originator, the water being cooled after the patient is in the tub. Objections to the bath on the grounds that its use predisposes to pneumonia, hemorrhage from the bowels, and relapse is unwarranted by the facts, and no well posted medical man now believes that by the Brand method any of these complications are more common than in cases managed in the ordinary way. As a matter of fact, Brand's statistics show a smaller proportion of these serious complications.

The cold bath is now the established mode of treatment in all, or nearly all, of our great hospitals in the North; it is being more and more introduced into private practice, though it is by no means generally used, even in our large cities. Whether this treatment will ever be universally adopted by the profession, in all its details, cannot be definitely answered now. Perhaps before that time a more simple cure will be placed in our hands, or the advances of sanitary science will have banished typhoid altogether, as some other diseases have been banished. Until that time shall come, there can be no question that the most successful management of typhoid fever lies in a strict adherence to the Brand method of treatment.

We have by no means exhausted the subject of hydrotherapy: Nothing has been said of its employment in pneumonia, in measles, in scarlet fever and nervous disorders. Much of practical importance could be said on the inter-

nal uses of water, as intestinal irrigation for diarrhœa and dysentery or lavage of the stomach, for dyspepsia and similar troubles.

All these applications of water are of practical value, and most of them are capable of being put in practice by the general practitioner. The limitation of this paper does not, however, permit me to occupy your time to a greater extent, and I leave the discussion of these interesting questions to others.

In conclusion, if we admit that the Brand method relieves more symptoms and saves more lives than any other means at our command, it seems to me that the question of greatest interest for discussion might be formulated somewhat as follows:

1. To what extent is the cold-bath treatment practical in private practice, particularly in country districts?

2. In the absence of trained nurses, is it absolutely necessary that the physician be present at each bath given the patient?

It would also be of interest to hear some suggestions on the best form of bath-tub for private cases.

You will notice that the quotations I have given are all taken from hospital reports. I am not aware that any one in this country has put on record cases taken from private practice.

THE RATIONALE OF HYDROTHERAPY.

By Simon Baruch, M.D., Attending Physician to the Manhattan General Hospital, New York Juvenile Asylum, etc.

Recently a professional friend suggested that by devoting too much attention to hydrotherapy my usefulness would be impaired, owing to a "one-sided" view of therapeutics. This suggestion has "given me pause," but, upon due reflection, I regard it as originating in a mistaken view of the duty of the physician to his colleagues and to humanity at large. I take it that the physician's first duty is to cure disease; his second duty, but not less important, to garner up his dearly bought experience and offer its deductions to his fellow laborers for criticism, study, and, if worthy, for imitation.

Throughout all my professional life I have been more deeply interested in therapeutics than in any other branch. Hence my contributions, whether medical, surgical or gynecological, have been to the treatment of disease.

Having spent the larger part of my professional life like many of yourselves, in village and country practice, may account for this predilection for a branch of the profession which is to-day too much neglected at home and abroad. A young Viennese doctor recently told me that he knew nothing of therapeutics because his teachers were engrossed in the *diagnosis* of living patients and autopsies of the dead ones far more than in saving the former from the fate of the latter. To search out a rationale for therapeutics has ever been my aim, because only by this means may therapeutic methods be firmly established in the minds of the profession, and this is the reason that led me to the investigation of water as a remediel measure. Here was a field that opened a valuable mine for exploration! How inexhaustible and rich the mine is, there is daily reason to observe. If I am persistent in offering to the profession the results of my exploration in this direction, the explanation rests in the fact that I have discovered the same surprising inattention to, and constant unfamiliarity with, hydrotherapy in the large majority of the profession, which was a painful discovery in my *own case*.

As the value of this much neglected remedy dawned upon me in a somewhat extensive experience gathered in private and hospital practice, the question presented itself: Is it not a duty to agitate this subject in the medical societies until its merits and objections are thoroughly canvassed?

From the earliest medical times water has been applied in medicine. In his work *De Aqua et Locis*, Hippocrates laid down principles in hydrotherapy which are so sound and practical that it would be a blessing to suffering humanity were medical students indoctrinated in them to-day. The average medical man goes into practice with the *idea that warmth stimulates and*

cold depresses. And yet Hippocrates himself taught the reverse, which is the truth. One of the first lessons we are taught in surgery is that when a limb is frost-bitten, we should avoid heat and apply cold. The reason is obvious even to the tyro in medicine—when this tyro becomes a full-fledged doctor and hears the cold bath suggested in typhoid fever he at once objects to it as a *depressing agent.* To overcome this prejudice, which is as deeply rooted as it is irrational, has been exceedingly difficult even for some of the greatest intellects, and most influential physicians, whose lives and works have illumined medical history.

Asclepiades, of Prusa, the bosom friend of Cicero, was a warm advocate of water. Indeed, he insisted upon being called a water doctor, and he was the man who founded the school in which were equipped for practice such illustrious men as Antonius Musa, the physician who saved the lives of the Emperor Augustus and of the poet Horace; Cornelius Celsius, the bosom friend of Ovid, and also of Galen. All these men remained true to, and exemplified, the teachings of their preceptor, applying water successfully in many acute and chronic diseases, and yet water fell from the high estate to which they had brought it. Paulus Ægeneta, the greatest physician of the seventh and eighth centuries, was the disvoverer of the use of the cold douche in sunstroke. Cheyene Huxham and Currie, men well known in English medicine, and Hufelond, the renowned German medical philosophers, were enthusiastic advocates of hydrotherapy, as was also, in later times, that grand teacher, Niemeyer. These representative men are mentioned to demonstrate that hydrotherapy never was, and is not now, a *medical fad*, and that it must surely be founded on correct rationale and on practical results at the bedside, if it enlisted the advocacy of such men.

When I am charged with undue enthusiasm in this matter, I am proud to be able to point to these men and men like Ziemmsen, Semmola, Charcot, Draper Peabody as confreres and collaborators

One of the reasons why water has not become fully established as a remedy despite the advocacy of able and conscientious men, is that its rationale has not until recently been studied with care and precision.

To Professor Winternitz, of the Vienna University, we owe the first attempt to invest it with some scientific accuracy. As a follower and student of this clinician, I have endeavored to impress upon my American colleagues the importance of not accepting water as a remedy only *upon empirical grounds.* If it is to take a prominent place in therapeutics—a place from which the whims and fancies, the prejudice and fashions of coming generations shall not again displace it, the rationale of its action must be clearly established. In this essay it is impossible to furnish anything more than a brief outline The more succinctly principles are formulated, however, the more readily they may be accepted or controverted. The rationale of the internal application of water will be omitted because this is very simple and generally appreciated.

That diuresis, for instance, is enhanced by free drinking of water, is a trite observation, as is the cleansing effect of stomach lavage and intestinal irrigation.

Although the external application of water in disease has been carefully studied by capable physiologists and clinicians, it has not obtained such universal recognition among practitioners as its positive effects deserve.

The action of water upon the human organism is derived from its physical and mechanical effects.

The physical qualities of water are utilized in hydrotherapy because it is an excellent vehicle for conveying the thermic and mechanical effects aimed at.

Water absorbs and gives up heat readily; it may be used in solid, liquid or gaseous form; it may be applied to any limited part of the body or to its entire surface. Hence its physical property alone makes it a most flexible therapeutic agent.

Thermic agents, as is well known, affect living tissues in the most pronounced manner. Smooth muscular fibre contracts under cold and expands under heat, and its contractibility may be entirely destroyed by an excess of either.

By the conveyance of cold or heat by means of water we are therefore enabled to produce striking effects upon muscular activity. As cold and heat are irritants, their reflex effect conveyed through the nervous system also become valuable therapeutically. Applying these axiomatic principles, we find that circulation, respiration, tissue change and heat production may be positively influenced by the application of water as a medium of conveyance of cold and heat, that abnormal conditions of these functions may be remedied and their healthy equilibrium restored.

That the application of cold to the cutaneous surface produces pallor and cutis anserina is a well-known fact, as is also the rationale thereof. The circular fibres of the cutaneous vessels and the elastic tissue surrounding the cutaneous capillaries are contracted, and thus they are made to contain less blood. Stagnation occurs in the arterial capillaries, while the venous, being less contracted, remain filled; the part becomes cyanotic. If this stage be prolonged under extreme cold, necrosis of the tissues lying in immediate contact ensues. On the contrary, if the application of cold is of brief duration, *reaction takes place*, the part is aglow. In the first instance we have a paralysis of the inhibitory nerves, which allows the vaso-constrictors to exert full sway, while in the latter the inhibitory nerves are stimulated, and tonic contraction and relaxation ensue. The deeper vessels in the muscular tissue are more slowly affected. The local hyperæmia produced by this reaction, both on the cutaneous surface and in the deeper parts, is therefore not a passive congestion, as has been too often assumed. It is not a congestion like that produced by the application of warmth, but it is result of a vital process—the reaction which

is the physiological sequel of the preceding depression. Admitting these trite physiological facts, you perceive that an immense field for therapeutic effect is at once opened.

The blood which is driven out of the cutaneous and muscular vessels must be taken into the general circulation, and thus produce hyperæmia in other more or less distant parts; arousing increased activity in organs whose circulation has been impaired by disease; removing the result of abnormal tissue change which the sluggish organ has been incapable of unburthening, stimulating it to more normal function.

That such effects are really produced, laboratory experiment, as well as observation at the bedside, has again and again demonstrated.

In a valuable essay before the recent International Medical Congress at Rome, Professor Winternitz, of Vienna, offered some practical observations upon the changes produced by thermic agencies upon the circulation of the blood and upon its composition in health. He ascertained positively that all applications of cold which involved the entire surface of the body or a considerable part thereof resulted in an increase of the number of leucocytes; the percentage of hæmoglobin and the specific gravity of the blood were also increased. This remarkable change in the blood was more or less enduring, its extent varied according to the technique employed, and sometimes it did not entirely disappear, even after a tolerably prolonged period of observation. Only in those cases in which no reaction ensued, as manifested by cutaneous hyperæmia, did this effect upon the blood fail. Indeed, in such cases the erythrocytes and often the leucocytes also were dimished. Sometimes the red corpulses were diminished while the leucocytes were increased.

Locally, the application of cold, when followed by reaction, almost invariably increased the cellular elements, specific gravity and hæmoglobin of the blood, while a diminution of all these ensued in distant parts. After flowing foot-baths, for instance, blood taken from the toe showed an increase, while that taken from the finger or ear lobe showed a decrease Warmth mostly produced a diminution of the cellular elements, hæmoglobin and specific gravity of the blood. A comparison of the composition of the latter in the normal condition of health, even, showed that blood distribution is quite unequal: for instance, while blood taken from the point of a finger furnished 4,955,000 red blood-cells and 91 per cent. hæmoglobin, blood drawn from the abdominal skin showed 7,266,000 and 11.5 per cent. hæmoglobin. When, after this examination a cold compress was covered, was applied so as to envelop the whole abdomen, the blood drawn from the abdominal skin and the tip of a finger an hour later was found to present a still greater difference from that of the finger tip drawn at the same time. While the cell elements were decidedly diminished in the latter, that drawn from the former, underneath the compress, showed an enormous increase of erythrocytes and hæmoglobin, sometimes

amounting to 2,000,000 of corpuscles and over 30 per cent. hæmoglobin. Up to the present time all our observations upon the effect of cold compresses and poultices were conjectural and empirical. But these valuable observations demonstrate them upon a clear rationale. That these effects may be utilized to explain the rationale of cold applications in diseases was demonstrated last year by Thayer, of Johns Hopkins University, who observed that the blood drawn from the lobe of the ear of a typhoid fever patient after a Brand bath contained three times the number of leucocytes which resulted from a counting previous to the bath. Since this enormous increase could not be the result of reproduction during the fifteen minute bath, the conclusion is inevitable, in view of Winternitz's observations just cited, that the increased activity of the circulation induced by the changing anæmia and hyperæmia of the cutaneous surface, resulting from the cold bath and friction, has drawn these cells from their hiding places on the outskirt of the blood stream and elsewhere and brought them into active service. Thus we have a brilliant explanation of one of the important effects of the cold bath in typhoid, the mildness it impresses upon its course, which may be charged to the phagocytic action of the leucocytes, when actively mingled with the blood current, where they must come into living contact with Eberth's bacilli or other pathogenic organisms.

How different this physiological method of stirring up a sluggish circulation is to that produced by medicinal agents, every practitioner may learn by comparing the impotence of the latter with the demonstrable results of the former.

Another result of the application of cold to the periphery is the increased blood-pressure produced. The contraction of the arterial capillaries induces a more rapid flow of blood into the veins, while the deepened inspiration, which is also a well-known incident of the application of cold to the surface accelerates the circulation in the smaller vessels, causes the blood to flow more rapidly into the left auricle: the contraction of the ventricle becomes more vigorous. Thus blood-pressure is enhanced.

Cold improves the muscular tone of the vessels, increases tension, but warmth relaxes them, causing passive dilation and loss of tone; although both produce a hyper-æmia, one is the result of reaction and is *tonic*, while the other is the result of relaxation, and is *atonic*. This trite fact is sadly disregarded in practice. Its more general recognition will do much to neutralize and remove the fear of shock from cold applications in atonic conditions.

Before entering into the rationale of the clinical application of these effects the reflex action of cold and heat as irritants may be briefly referred to here. That the old idea of the direct derivative action of irritants like blisters is fallacious, has been clearly shown by Naumann and others. Naumann severed all the connections of a frog's head from its body, except the spinal cord, and then severed one leg from the body—after tying the vessels to prevent bleeding—except by its sciatic nerve. By applying irritants to the severed leg the blood

in the lungs and mesentery was made to flow more freely: when the irritant was withdrawn it flowed more slowly. From this experiment he deduced laws which are of so much importance in the rationale of hydrotherapy that I may be pardoned for summarizing them here: "The action of irritants is reflex and potent on the circulation; feeble irritants stimulate the latter and intense irritants depress it; effects continue after withdrawal; relaxation ensues after the stimulation; cooling follows the warming effect of the increased circulation."

That the circulation of the blood in distant parts is reflexibly influenced by thermic irritants, has been plainly demonstrated by the classical experiments of Max Schueller upon trephined rabbits.

Having the circulation in the pia mater directly under his eye, he found that any irritation, such as pressure upon the belly, was followed by filling of the veins.

The application of cold wet compresses upon the belly of the rabbit was followed invariably by dilations of the blood-vessels in the pia mater and increased and slowed pulsation and deepening and retardation of the breathing.

The application of warm wet compresses to the belly of the rabbit was at once followed by a contraction of the vessels of the pia mater, a diminution of cerebral pulsations and a more rapid and shallow breathing.

Very hot compresses were followed by the same effect as cold compresses. And right here I may call attention to a point not sufficiently appreciated, that extremes of heat produce temporarily the same effect as extreme cold.

By dipping the rabbit into cold or warm water, i. e., giving it a bath, the same effects were produced as by compresses of the pure temperature. Many other valuable points of practical interest were ascertained by these experiments, whose results are sustained by others—all tending to demonstrate that the various hydriatic procedures produce opposite effects which medicinal agents are incapable of accomplishing.

It is not difficult to demonstrate that the thermic action of water upon the human organism is capable of influencing its every part and function in the most pronounced manner.

Beginning with the skin, we know that this is an organ of protection by reason of its external layer; of excretion and heat regulation by reason of its glandular and sacular supply; of sensation by reason of its harboring terminal nerve fibres. Hence the skin is the great outpost of the human body. As a stimulant to all these functions water has long earned a well deserved position. That by warmth or cold conveyed through it we may increase or diminish any or all of these functions of the skin, need not be enlarged upon before this audience. By reason of its action upon the glands of the skin we may enhance excretion of products of tissue changes, as in uræmia, by warm baths and hot packs; by reason of this action we may increase or diminish the

heat of the body, which is regulated chiefly by giving off moisture, and which may be powerfully influenced by direct cooling of the blood as well as by reflex effects from the nerve centres. That soothing or stimulating manifestations may be produced by warm or cold baths, is also so common an observation that it requires only an enumeration in this category.

Next to these powerful effects upon the skin proper, let us consider the effect of hydriatic procedures upon the heart and circulation. The first impression of cold upon the sensory cutaneous nerves is rapidly conveyed to the brain. Rapid contraction of the cutaneous vessels ensues, causing an inereased vascular tension, which is followed by slowing of the pulse. This continues so long as the individual rests, but the pulse rate increases with continuance of high tension, if exercise be taken after the hydriatic procedure. The effect of cold applications upon the *respiration* is to deepen and slow it; the normal frequency is, however, soon resumed; but the deepening effect continues. Hence it is wise to send anæmic and other patients requiring increased supply of oxygen at once into the open air after cold hydriatic applications.

The influence of cold applications upon constructive and destructive metabolism is demonstrated by the increase of urinary specific gravity and continues for several hours, as shown by Inergensen and others; also by the increased excretion of carbon dioxide discovered by Liebermeister and Voit after cold baths. Warmth produces the opposite effect.

Having now briefly pointed out the powerful physical and thermic effects of water upon the human body, it remains to refer to *the mechanical effect.* Friction alone has been shown by Pospischl to produce a great increase of heat loss; and Winternitz has demonstrated that when active mechanical irritation is combined with cold baths, the temperature of the patient is more readily reduced. Indeed, Winternitz has announced it as a law that the amount of compensatory heat increase which is incidental to all cold baths is not influenced by the absolute amount of heat abstraction, but by the degree of actual cooling of the peripheral terminal nerve fibres, which govern the production of heat by reflex action. Mechanical irritation, as friction during a cold bath, prevents tremor and that intense tonic contraction of the muscles which always results in the production of heat. These facts are beautifully utilized in the Brand bath, whose efficiency depends not any more upon its temperature (65.4°) than upon the active, but gentle, surface friction.

Aside from this reflex effect produced by the mechanical aids utilized in hydriatic procedures, the actual pressure with which water may be applied enables us to vary its effects. In a full tub bath respiration is more difficult, because of the pressure of the water upon the thorax.

The effect of a douche delivered under pressure of one or two atmospheres is stimulating to the cutaneous vaso-motor nerves, as is evidenced by the rapid dilatation of the cutaneous vessels at the points of impingement. The exact

experiments of Maggiora and Vinaj (*Blætter f. Klin. Hydrotherapee*, January, 1892,) demonstrate that the mechanical effect of water applied under pressure of two atmospheres, increases three-fold the working capacity of the muscles, as mathematically ascertained by means of the ergograph of Mosso, which correctly and automatically registers muscular resistance

Thn mechanical massage produced by a good douche sets diseased structures into a vibration which cannot be approached by simple manual massage. This mechanical effect is constantly utilized most effectively in feeble patients, to whose condition it may be graded and adapted. In locomotor ataxia patients may be greatly injured by cold baths and douches. Here we utilize advantageously the tonic effect of hot douches by combining more or less the mechanical effects of pressure, gradually increased and adapted to the case.

This brief outline of the rationale of the action of water upon the human organism may be fitly concluded by explaining the manner in which it may be applied therapeutically.

We have several, indeed numerous, methods of applying water externally, all of which aim to deduce some curative or paliative result from the application of those principles of hydrotherapy which have been briefly formulated under the term rationale.

But we are capable of applying water in the treatment of disease with greater accuracy and more extensive latitude in resultant effect than is possible from the application of medicinal agents. I do not say this in depreciation of the latter, whose value no one is more ready to acknowledge than myself.

To substantiate this proposition, allow me briefly to point out that we have three elements of increasing and diminishing the therapetic effect of water upon the organisms, viz: temperature, duration and pressure.

That the temperature is capable of modifying the effect of water is well known. A very high or very low temperature produces destruction of tissue, while moderately hot water produces a rubefacient effect. The difference in the effect of a bath or other hydriatic procedure at 100° and at 45° F., needs but to be mentioned to be appreciated, and it cannot be denied that every five degrees, more or less, between these two extremes must produce a different effect in the same individual bath or other procedure. That the duration is capable of modifying the effect of the latter is also known. It would be easily appreciated by the experiment of dipping one hand into water at 40 4° for two seconds and drying it with friction, and then putting the other hand into the pure water for ten minutes and drying with friction. In the first case we would obtain the stimulating effect with a fine glow and well filled ruddy cutaneous vessels, while in the second instance we would have a shrivelled skin, of cyanotic hue, cold and clammy, which many minutes, if not hours, of friction, would be required to react from.

It may not be so evident that every second of time of exposure to a hydri-

atic procedure of the same temperature may alter its effect; but this is really a fact, of which any one can be convinced by personal observation.

Pressure.—Although the modifying influence of temperature and duration is usually recognized, the effect of *pressure* is not so generally appreciated. A pressure of four atmospheres driving a stream of water of any temperature through a very minute opening, produces *destruction of the skin upon which it impinges.*

During one of the meetings of the staff of the Montefiore Home a good deal of amusement was created by drilling small apertures into the thumbs of some of my sceptical colleagues by means of the douche filiforme of Laureat. Driving water at the same pressure through a larger aperture will produce a rubefacient effect, while a stream of still less pressure will produce a temporary blush only. Then we may produce the destructive effect of a caustic or blister, or the rubefacient effect of mustard by simply varying the pressure with water at the same temperature.

When a stream of water of 50° is driven upon the body under the pressure of two atmospheres, the depressing, chilling effect of the low temperature is counteracted by the massage and friction due to the forcible impact. The skin emerges from such an application in a glow. If the same individual be bathed by pouring the same water over his body from a sponge, the effect would be depressing, (chilling), and so much greater reaction capacity would be required on the part of the individual, that an attendant must be necessary to aid it by friction.

It is plain, therefore, that we have a safe latitude of 70° (40°–110°) in *temperature*—a safe latitude from one second to many minutes in *duration;* a safe latitude up to 30 pounds in *pressure;* by means of which we may modify the effects of hydriatic procedures.

Besides these *mathematically ascertainable* elements of a hydriatic prescription, we have various modifications in hydriatic technique, as baths, packs, ablutions, douches, etc., by means of which we may again render the effect very flexible.

One who has had occasion to observe this flexibility of hydriatic measures cannot fail to be convinced that no similar effect is deducible from medicinal agents.

It is difficult, if not impossible (selecting a powerful remedy for illustration) to ascertain by any reliable test if there be a difference in the effect of strychnia upon the pulse, respiration, digestion or tissue change produced by any *non-toxic dose* (from say 1 60 grain to 1-50). I am not aware of such facts having been ascertained. All the so-called physiological effects drescribed by Horatio Wood and others are predicated upon poisonous doses, not upon medicinal doses. The same observation may be made upon many other valuable agents.

Unless toxic doses, or doses closely approaching these be used, there is no definite clinical or rational difference ascertainable.

Hydriatic procedures, on the contrary, are so flexible that they may be administered by such a variety of methods that their effect may be definitely closed, as it were, and correctly ascertained

In conclusion, I would offer some illustrations of the rationale of a hydriatic procedure:

Place a patient suffering from any severe infectious disease, with high temperature, into a bath of 70° for fifteen minutes, practice active friction and observe the result. Elevated temperature, rapid and perhaps feeble pulse, shallow respiration, dulled intellect, lost appetite, concentrated and scant urinary and other secretions indicate that the nervous system is overwhelmed by the products of infection. So soon as he enters the water he gasps. The shock and subsequent stimulus to the cutaneous surfaces are conveyed to the nerve centres and thence reflected to the heart, lungs and the other organs. Observation at the bedside at once renders these effects patent.

The first effect is a refreshment and enlivenment of the cerebrum. The eyes are opened; the face loses its apathetic stare; consciousness returns after one or more baths; the respiration is deepened; expectoration is facilitated; the widening of the peripheral vessels and the stimulation of their coats relieve the heart; blood-pressure is increased, and the laboring organ becomes as quiet as does a sea-tossed ship in the hands of a skilled mariner. The secreting glands are aroused to activity. Moreover, the temperature is reduced, not so violently as by medicinal agents, but more definitely, in better accord with normal tendencies. In brief, all the manifestations of the disease are favorably influenced because the normal standard is slowly but steadily and lastingly approximated under the influence of repeated judicious bathing. Even the most exacting demands of the most recent ideas are met by this treatment.

Metchnikoff has shown by his interesting studies that inflammation is the phagocytic reaction of the organism to an irritant. Cells are phagocytes, hungry to devour any toxine or microbe that may find entrance into the blood.

We may successfully aid the system in this "reaction against the toxines" by endowing its main vitalizing agent, the nerve centres, with vigor, by furthering elimination from the skin and kidneys, by removing hyperæmia of the organs and facilitating the passage of phagocytes into the tissues, but more especially by rendering the blood more alkaline, and thus more favorable to the phagocytes. A lack of recognition of these principles involved in the Brand bath in typhoid fever leads to disappointment and disaster. If, for instance, the temperature and duration are not properly adapted to the case, the shock and subsequent stimulus are modified. If the frictions of the surface are omitted, the widening of the peripheral vessels is prevented and cyanosis will result instead of the ruddy hue of the skin, with consequent depressing effect

upon the heart. The latter, instead of being aided by the tonic widening and responsive elasticity of the cutaneous vessels, will remain contracted, and thus embarrass the heart; collapse ensues with feeble pulse, Cheyne Stokes-like breathing—effects so rare after the application of this bath, according to its correct rationale, that I have never seen them, but effects which we often hear in discussion attributed to the cold bath, instead of its improper application.

That there is need of a good deal of missionary work on the subject I have frequent opportunity of observing. As an example allow me to cite a case in point. Two months ago I was asked to see in consultation with an intelligent and experienced colleague a child of two years in the latter part of the third week of scarlatina. Desquamation was proceeding; the child was suffering from enormous cervical glands, jactitation with partial stupor, very high temperature, feeble pulse, in short, a clear case of sepsis. The attendant recited the difficulty of controlling the temperature by aconite, phenacetin, quinine, and concluded with the statement that even baths, against which he claimed to be prejudiced, had proved ineffectual because the child collapsed in them. On inquiry I learned that the baths were applied fifteen minutes, beginning with a temperature of 110° F. and reducing gradually to 80° F. If a correct rationale had been followed, such a bath would not have been used. The object in view was to lull the patient to rest, to reduce the temperature and improve the heart's action. That a temperature of 110° would produce the opposite effect, it would seem patent enough, even to one who has not studied the rationale of hydrotherapy. But to disturb a child in this condition by the splashing and noise necessary to reduce the bath to 80°, to allow water of such a low temperature to come into contact with a tender, partially denuded skin, even by slow degrees, is entirely opposed, as you will perceive, to the rationale I have offered. A bath of 95° degrees for eight minutes fulfilled the indications effectively.

A few days ago a phthisical patient in my wards at the Manhattan Hospital, who was receiving considerable benefit from a dry pack, followed by ablutions at 80°, reduced daily until 60° was reached, was asked how he liked the cold ablutions. His reply was that he liked this treatment and that he had received it in Bellevue Hospital, where they had *even put him in tubs of ice water*.

Another illustration and I have done. A few days ago an eminent teacher told his class that the best treatment for neurasthenia is cold water. He said it was best administered at an institution. In the absence of the latter he advised giving a bath of 105° F., then pouring several basins of water at 70° F. over him. If the object of this treatment is to arouse the sluggish nerve centres, it would be far more proper to omit the warm bath, which relaxes and diminishes the reactive capacity of a strong individual even. Such neurasthenics should only have the feet covered with warm water to prevent chilling, and receive ablutions with frictions of water at 80° daily, reduced two or more degrees

until their reactive capacity is educated, as it were. Then, and not until then, may the affusions be applied with great benefit. Of course patients subjected to improper hydriatic procedures fortunately do not die from them—they do not even suffer materially in most cases, but the remedial effect is neutralized, if not entirely thwarted, by a disregard of the true rationale.

This is my chief reason for bringing this subject to your attention. I ask you to give the same clinical study to the remedial uses of water which you have devoted to the study of medicinal agents; I ask you not to condemn this valuable agent until you have tried it fairly according to the principles which are briefly pointed out in this paper, and which will amply repay more elaborate investigation. Having mastered these principles, you will find that the clinical application of water will afford you not only an auxiliary to the ordinary treatment of diseases, especially those which have become chronic and intractible, but in many desperate cases it will prove a last, but effective, resort.

In *chlorosis*, that has resisted iron, in the *various obstinate digestive troubles*, in *phthisis*, *chronic rheumatism* and *neuralgia*, in *neurasthenia* and other functional neuroses, in the faulty nutrition of most organic diseases, too, I have been able to confirm the opinions of Draper, Semniola, Erb, Chareat, Leyden and other clinicians, that we have in hydrotherapy an agent of great power, which is not sufficiently recognized by the profession. I have come to regard no case as hopeless until a judicious and methodical application of water has proved ineffectual.

DISCUSSION.

Dr. O'Hagan said that after the very philosophic and scientific exposition of the therapeutic uses of water, he was surprised that there was no response from any members of the Society. He said that it had been his good fortune to come across a man who had been under the treatment of this Prussian peasant, who first popularized the use of water as a curative agent. It was in the commencement of his professional career. The man had been a fast liver and had gotten bad health. He had gone to various physicians in Paris and in London, and derived no benefit from their treatment. He then went to the mountain home of this Prussian peasant, and there he was restored to perfect health. A number of other invalids from England and other parts of continental Europe were induced to go, and they received benefit from the treatment. He had gotten books written by scientific men on the subject. He told the case of a man who had been under treatment for dyspepsia ten years. In eight weeks he was restored to health.

Dr. O'Hagan spoke of the utter futility of the recognized drug treatment laid down for fevers. Long before the water treatment for fevers was promulgated by Brand in Germany he had been in the habit of treating them with the cold bath, neither scientifically nor systematically, for he did not understand it. The water treatment is one of the most valuable that we have. He believed

that more good could be accomplished by the use of water for fevers and for diseases of the digestive organs than with the whole materia medica. He told of a case to which he was called. The man was excited and his pulse feeble. He was taken and wrapped up and water poured over him. To the astonishment of the doctor, in a short while the man became rational. For the first time he slept. The treatment of diseases depends more upon water than upon all the materia medica. The uses of water are innumerable and its applications are invaluable. It is applicable to almost every known disease. He hoped that the able papers by the two gentlemen would stimulate all the members of the Society to an active study of hydrotherapy. He recommended it as one of the most powerful agents known for the curing of disease. He said that his scepticism increased when he saw the rack and ruin produced by the reckless use of powerful drugs.

Dr. Flippin stated that this method of using cold water seemed to have been given up almost entirely to the quacks. But it is becoming more widely used than ever before in the history of medicine. He said that typhoid fever treated by Brand's method, that is, by cold water, at a temperature of about 65°, with friction of the body with the flat surface of the hand, gives a mortality of less than 4 p. c. Treated by the drug plan, it gives a mortality of 40 p. c. The cold water plan will lower mortality and the drug will raise it. It is often difficult to carry out Brand's method for the treatment of typhoid, for the tub cannot always be obtained. Dr. Flippin's plan was to carry a rubber oilcloth about with him. The oilcloth could be easily placed upon a table and the patient laid upon it and water poured over the patient. Start with the water at 80° and come down to 65°. The patient is to be kept in the bath for about fifteen or twenty minutes, until his temperature is brought down to 99° or 100°. When properly used, cold water is no depressor, but a stimulant.

The attention of the Society was called to the most fatal disease of childhood—cholera infantum. It is not found so much in rural districts as in cities. If it should be attempted to reduce the temperature of the child by drugs, the child would probably die from the depressing effect of the drug. Dr. Flippin's plan is to wrap the little sufferer up in a wet pack of about 75° or 80°. He repeated this about every hour until the temperature was about normal. He also gave a hypodermic injection of morphine with this. In connection with this he ordered that the child should have nothing to eat for thirty-six hours. It is allowed all the cold water it wants with an occasional sip of hot water. When the child is fed the diet must be very light. In that connection he said he thought that it would be better not to feed typhoid fever patients for the first few days of their sickness. Give them plenty of cold water and no food from the first three to ten days of sickness. He believed that then there would be no long cases of fever, and that there would be no necessity for the cold baths.

Dr. McMullen said that in typhoid fever there is a manufacturing of poison, to which all the distressing symptoms observed are due. He said that treatment is for the purpose of lessening the manufacture of the poison, and thereby rid the system of it as rapidly as possible. There is no force greater in such matters than that of osmosis. When this hyperæmia of the skin is produced by the secondary relaxation of the circulation, and we bring in contact with the fluid of circulation a light fluid, then osmosis takes place This double current at once takes place. We have placed in the circulation of the patient pure water, and from the circulation into the water the toxine of which we are so anxious to rid the system.

Dr. Sykes said that he had no further experience in the cold water treatment than the application of cold cloths to the head. He had used the medical treatment and for the last four years his death-rate had been less than 4 p. c. He said that he did not doubt that others present who had used the medical treatment had had even a lower death-rate.

Dr. Moore had heard with much gratification the addresses of the respective gentlemen upon this subject, and felt highly instructed. He thought that something ought to be said for the comfort of that part of the profession living in the country. Unfortunately, in America the cities are becoming predominant, and especially so in the treatment of disease. They have all the appliances that are necessary for carrying out in the most minute manner the principles that they regard as essential. And they suggest to gentlemen who have country patients to carry out the same. Unfortunately, it is utterly impossible to carry out all the elements they regard as essential to the successful treatment of the patient. These medical men are made unhappy and dissatisfied because they feel incapable of doing justice to their patients. While these principles of therapeutics are recognized as fundamental, and, while all that is claimed for them is virtually true, the treatment of typhoid fever by the application of hot and cold water is only within the province of the few. This is no new principle. It was practiced during the time of Roman history as well as in the Middle Ages. Those who have read Lawson's History of North Carolina, published in 1700, will remember the manner of treatment of fever by the Indians. It is to be very much desired that the essentials of the treatment of fever in the manner described can be reduced. In the treatment of fever use as little medicine as possible. He closed with an appeal to the gentlemen not to make themselves miserable because they could not carry out in minute detail the cold water treatment of typhoid fever.

By request of Dr. Gibbon, Dr. Baruch closed the discussion with a few remarks.

He said that he had found in this discussion an acquaintance with the subject which he had never found in any of the medical societies of the State of Eew York. One gentleman had stated, and stated correctly, that there is no

better tonic in the world than cold water properly applied. Another gentleman said that he put the patient into a tub and gave him cold affusions. Now, when any one has a case of typhoid fever he should put the patient into a tub and give him several buckets of water, beginning at 70°. After waiting fifteen or twenty minutes he should repeat it with the water at 60° and then again at 50°. He spoke of the remarks of Dr. Moore being very appropriate in many respects, but still they did not meet the point. If the doctor knows exactly how to use the cold water it is not necessary to have the Brand bath and the tub. That is the proper treatment, but when the best cannot be had, take the next best. He said that he took the statistics of no private practice, not even his own, in this case—for this reason, what are a hundred cases of typhoid fever? He then referred to the valuable statistics which have been tabulated from the records of the Hospital of Munich for forty years. Everything connected with them was put down. They are the statistics of 8,400 cases that occurred during forty years. It was taken from men of the same stamp, men who were healthy when they came, men who took the same kind of food, who got up at the same time of day, and men who had had the same kind of drilling. That is what he calls statistics of a disease. You cannot get statistics from any 200 or 300 cases in private practice among all sorts and conditions of people.

A PATHOLOGICAL VIEW OF SOME OF THE ACUTE SPECIFIC FEVERS.

By Thomas M. Riddick, M. D., Woodville, N. C.

Upon the walls of a dance hall in a far Western town is posted this pathetic inscription: "Gentlemen will please not shoot the fiddler, for he is doing the best he can." In the same deferential spirit I bespeak for myself, to-day, your kindly forbearance.

A Pathological view of Some of the Acute Specific Fevers is the title of my paper.

To treat of this subject with any degree of fullness, would require a volume rather than a thesis. The field for research is a broad one. The limited time, however, forbids exhaustive and extensive inquiry.

I shall content myself by noticing, in a cursory and fragmentary manner, some of those more prominent and important affections which often come under the professional care and clinical observation of the medical practitioner.

Let us take first the scourge of childhood, diphtheria, which strikes terror to the tender maternal heart, by its mere mention, and vividly suggests a sorrowful visitation of the angel of death to the couch of a dying loved one!

Many and various theories have been advanced by pathologists at different times as to the causative agent in this distressing malady, but the latest bacteriological investigations of the able and learned Dr. Welch, of Johns Hopkins University, Baltimore, buttress and confirm the opinion that the Klebs-Loeffler bacillus is the real mischief-maker here, the *fons et origo mali.*

Certain depraved systematic conditions, conjoined with malhygienic surroundings, act as auxiliaries in the development of this disease, with its collateral morbid manifestations.

This morbific microbe, then, of Klebs and Loeffler, finding a fostering and favorable nidus in the system, institutes the primary attack. The disease cannot originate *de novo.* Some of the lower animals, as well as the human genus, can propagate it. The inoculation by the germ may be through the inspired air, or by direct contact.

Coincident with the topical infection, by the *bacillus diphtheriæ*, is the generation of a toxic proteid, or albuminous morbificient (the result of chemical change), which, being introduced into the general circulation by absorption, gives rise to a pronounced and dangerous toxæmia.

Then follow those degenerative changes in the tissues of the organism, which constitute the pathology of the disease.

But I am digressing somewhat. Let us follow up some of these pathological changes in a typical case, and take note of their clinical features.

One of the distinctive features of diphtheria, and one which aids no little in diagnosis, is the formation, for most part upon a mucous membrane, of a pseudo membrane. An inflamed, abraded surface may be the site of the diphtheritic deposit, though this constitutes the exception, the tonsillar portion of the facial membrane being the favorite point of initial invasion. No mucous surface in the human anatomy, however, enjoys an immunity from attack, the nasal passages, the Eustachian tubes, the delicate membrane of the middle ear, the conjunctiva, as well as the mucous membrane of the stomach, intestines, vagina, prepuce, and even the internal uterine walls having at times been the places of membranous deposit.

When the throat is the original site of inflammatory activity, we notice first, upon the tonsillar surface, the appearance of a small whitish spot, set in a red and angry-looking back-ground. This, we might say, is the *avaunt courier* to announce the approach of the coming trouble. These spots, in their inceptive stage, simulate somewhat the earlier manifestations of follicular tonsillitis. Soon these exudations multiply. An aggregation of them constitutes a patch or pellicle, which becomes thicker and broader from increased exudations from beneath. As they become older they coalesce, become tough and shreddy, change color from an ashen-white to a brownish red, and often a dusky hue, especially in super-imposed adynamic attacks, and form a fibrinous net-work over the underlying tissues Epithelial cells, nuclei, mucus and amorphous matter are found in this plastic exudative reticulation. Leucocytes, those errant gypsies of the blood, abound. Bacteria, chiefly micrococci, are present, and sometimes play an important role in superinducing other diseases, to complicate the original attack. The inflamed true membrane is infiltrated with serum, and turgid from vascular engorgement. The underlying submucous tissues also take on a condition of œdema, and there, too, the fires of an active inflammation brightly burn.

Now, while this false membrane amalgamates with the underlying tissue in some instances, and forms one devitalized necrosed mass, in other cases it does not do this, but merely acts as a detachable covering or lining. The location of the membrane has much to do with this. It seems that the character of the epithelium over which the false membrane lies determines this matter of adhesion. Over pavement epithelium, above the superior vocal cord, the false membrane unites with, and even penetrates, the true membrane, and cannot be detached without producing marked lesions of blood vessels and connective tissue, while on columnar epithelium, below the superior vocal cord, the removal is easy and free from injury to the sub membranous structures.

The neighboring areas of the pharynx, which are not themselves the locations of membranous exudation, take on an inflamed catarrhal condition. They exude a muco-purulent secretion. In the more virulent forms of this af-

fection the uvular velum, isthmus, lateral and posterior walls of the pharynx, as well as the nares, are all covered by this fibrinous exudation.

Rapid reproduction follows the forcible removal of the pseudo-membrane, due to excessive plasticity of the blood, hence the good results often seen in this disease from the exhibition of mercury, which, in addition to its antiseptic and germicidal properties, also defribrinates the blood, in a measure, and thus limits membranous formation.

In favorable cases the formation of pus between the healthy tissue and the false membrane aids in the exfoliation of the latter, though for the most part its removal is gradual and progressive.

In the tonsils there is a pronounced hyperplastic condition of the septa and adenoid tissue. The follicles are filled with dead cells and tissue debris. Hyaline degeneration takes place. The walls of the tonsillar vessels become indurated and thickened. Occlusion sometimes follows where this condition obtains inside the blood-vessels. The muscular fibres in the adjacent tissues also take on these degenerative changes of a hyaline character. White corpuscles are interspersed everywhere. Necrobiosis is the rule in the contiguous affected territory. The blood in the more severe types of diphtheria loses its bright arterial hue. In cases where croup is superadded this dark hue of the blood comes from an excess of carbonic acid, doubtless from the partial occlusion of the respiratory tract and the non-admission of oxygen in proper quantity. As yet the blood changes occurring in this disease are not fully understood. The red corpuscles are diminished in quantity, while the white bodies exist in excess. It is probable, too, that there is an abnormal proportion of fibrin present, though some authorities, reasoning by analogy, held that the fibrin element is lessened.

Among the lesions found we may mention hæmic extravasations in the brain and its meninges, the lungs, the spleen and kidneys.

The lymphatic glands, cervical and maxillary, swell. In the cells of these glands there is great hyperplasia. Points of cell-death occur in the cortical portion of them. Here, too, we find hyaline degeneration.

In the spleen the toxic action of the diphtheritic virus is also apparent. The organ becomes enlarged. The capsule becomes tense. The pulp becomes soft. The follicles become prominent. The blood-vessels are engorged. A girdle of leucocytes surrounds the follicles. Hyperplasia of the splenic corpuscles exists. Hemorrhage and necrobiosis are seen.

Within the capsule and sometimes within the parenchymatous structure of the liver hemorrhages from the capillary vessels are found. The hepatic tissue is infiltrated by leucocytes, though they are found most frequently in the interlobular spaces. Nuclear changes are not observable in them. The cells of the liver may retain their integrity or they may take on a fatty condition.

As the circulatory volume all passes through the kidneys, it is but natural to expect both organic lesion and functional derangement in these organs, from the toxic action of the blood-poison upon the renal tissues In the graver cases of this malady albuminuria is often found to exist. This does not come alone from the diphtheratic virus. Feeble cardiac action, impaired activity of the respiratory function, together with pyrexia, are all factors in superinducing this pathological state. A pronounced nephritis, with its collateral troubles, hemorrhages under the capsule, and within the glomeruli, as well as between the tubules, is one of the serious accompaniments of diphtheria. Around the vessels there is an infiltration of the cells, which take on nuclear disintegration. The capsule of Bowman sometimes becomes thickened. There is inflammation of the interior structure of the renal blood-vessels, with epithelial proliferation and desquamation. Tube casts appear in the urine.

How could that great systemic force-pump, the heart, escape the general contagion, since it is through its action that the distant tissues are flooded with the lethal agent that inaugurates a condition of disease? It does not. Its own blood-vessels take on that degenerative action noticed elsewhere. Cardiac energy is diminished. On both the endocardial and pericardial surfaces blood extravasations are noticed. Leucocytes appear in masses. The muscle tissue degenerates. The endothelial structure of the cardiac arteries proliferates.

As the bronchi and lungs are the anatomical neighbors of the pharyngeal parts, they often become affected by contiguity. The paryngeal inflammation, extending downward, involves the bronchial tubes, and later on the pulmonary structure, giving rise to a broncho-pneumonia. Pulmonary obstruction, from embolic plugging, may occur. Œdema of the lungs sometimes exists.

Paralysis is a formidable sequence to this disease, in many instances, but as its causation and pathology are not yet fully understood, there is nothing definite to report. It is probable that blood extravasations in the spinal cord and brain may be etiological factors.

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The next affection which I will consider is an old familiar foe to you all—to the swamp doctor of the Eastern lowlands, who dwells where the stately cypresses proudly stand, richly festooned in the artistic drapery of nature, to the Piedmont physician, who occupies that happy middle ground, "where health and plenty cheer the laboring swain," and to the medical mountaineer, who lives in that rugged region where the lofty Alleghanies kiss the clouds with their heavenward-reared summits. I refer to enteric or typhoid fever. It is only of recent years that the seggregation of this fever from the other pyretic affections has been accomplished. For a long time it was thought to be the cousin-german of typhus fever, but later researches have effectually dispelled that opinion, and removed every semblance of supposed kinship.

The *bacillus typhosus* is here the artificer of trouble. It is a social

mierobe, and is found in colonies or clumps in diseased organs. In size it is three times as long as a red blood-corpuscle, but loses two-thirds of diametric measurement. "Sometimes the bacilli appear in the form of a very short rod," says Dr. Wilson. Whatever may be the shape of the microbe, it is capable of mischief when taken in the intestinal tract, which is the primary site of its pathogenic activity. Water and milk are the chief media of transmission, though it may be acquired through inhaled air, the buccal membrane intercepting the germs, which are afterwards swallowed, pass into the stomach, and if not digested there, go into the bowels, where the alkaline secretions are more favorable to their existence and increase.

This microbe is not autogenetic. It cannot originate itself, as Pettenkofer supposed. It must come from a pre existing germ. It does not remain in the blood, but prefers as its habitat the marrow, spleen and liver.

From the body it is discharged in the fæces. Great extremes of temperature do not affect this microbe. It has withstood excessive heat and survived for months in cakes of ice.

The lymphatic and intestinal tissues are the first points of attack by the bacillus typhosus. They penetrate into the solitary follicles and into the patches of Peyer; here they propagate. From this central point branch settlements originate. The colonists migrate by the lymphatic route to the ganglia of the mesentery. The liver is reached by way of the radicles of the superior mesenteric vein. From here the circulatory current takes the germs to the spleen and other organs.

A poisonous ptomaine is elaborated by this microbe in the system. It is called "Typhotoxeine" by Brieger. It is from the pathogenic action of this chemical agent that the dangerous constitutional symptoms incident to the disease arise, especially those which affect the nervous and circulatory systems.

In the intestines the bacilli themselves are the causes of trouble.

Like cerebro-spinal fever, typhoid fever is characterized by a peculiar anatomical lesion, which is not the rule in other pyretic affections. These lesions, however, play rather a subordinate role in the causation of untoward symptoms. As before remarked, it is the ptomaine which is the arch enemy that confronts the physician here and demands his best therapeutic skill.

Let us see what are some of the pathological evidences during the different stages of invasion, fastigium and decline in enteric fever.

The primary change which we observe is a pronounced swelling and hyperæmia of the intestinal glands. The patches of Peyer project above the surrounding surface and assume the form of ovoid plaques. These plaques have raised edges, while the central surface is reticulated. The *glandulæ solitariæ* become hard and spherical In shape They resemble shot. In size they run from a fourth to an eighth of an inch in diameter. There is a hyperplastic condition of the lymphatic elements, giving rise to undue enlargements. The submucous tissues become infiltrated.

After this stage has reached its maximum of intensity necrosis begins in the lymphatic tissue. A dirty, yellow color, which progressively increases, is noticed. The follicles break down at irregular points. Ragged, ulcerated surfaces appear. These may coalesce and form a slough. Presently this is cast-off, either in part or entirely. Cicatrization in favorable cases follows, the healing being by granulation.

Sometimes perforation of the gut occurs, followed by an exudation of the intestinal contents into the peritoneal cavity. Then we see a fatal purulent peritonitis as an unfortunate sequence of this mishap. Hemorrhage from an eroded blood-vessel sometimes is met with.

When an intestinal ulcer is deep and aggravated the whole patch of Peyer is, for the most part, involved. Generally the muscular intestinal coat forms a base or door of this ulcer. If this be eroded, the peritoneum takes its place In the solitary glands a like process obtains.

If the same action exists in the *glandulæ agminatæ*, it produces oval-shaped lesions, the long diameter of which runs parallel with the intestinal lumen.

The vessels of the mesentery, in the affected sections, become engorged. The same histological effects are apparent in the mesenteric glands that obtain in other diseased portions. The primary condition here is one of great vascularity. In favorable cases resolution sets in, and the effused matter is taken up. In other cases a necrotic state follows as an unfortunate sequel. Calcarious degeneration has been known to occur, preceded by a cheesy metamorphosis. Other lymphatic glands, especially those of the liver, exhibit similar degenera tive processes.

The spleen shows changes similar to those found in the lymphatic follicles and mesenteric glands. Enlargements and hyperæmia exist. In the latter stages a soft, almost diffluent condition comes on. The color is a brownish red. Hemorrhargic infarctions are sometimes seen in the post-mortem examination.

There is another class of lesions yet to be mentioned. These are not the local effects of the bacilli. They come from the general systemic infection, and consist of degenerative changes that are manifest throughout the anatomy, though most apparent in the heart, kidneys and liver. Not only the deleterious action of the microbic poison, but the protracted and excessive thermogenesis which exists, is also to be considered in the causation of these parenchymatous changes.

To the practitioner of medicine there is no feature in the treatment of typhoid fever, of a grave type, which claims the watchful care more than the cardiac function. The heart-muscle takes on a condition of the fatty degeneration. Atrophy is pronounced. The heart loses the tone and strength of health. A relaxed flabby condition is substituted. Its repulsive power is greatly im-

paired, as evidenced at times by cyanosis. In recovery regeneration of tissue follows, the degenerated matter being removed by absorption. Thrombi are sometimes formed, which may give rise to embolism in other organs. The blood-color, like that of diphtheria, is dark, and soft coagula form, making the two hæmic conditions more analogous, though coming from different causes. Induration is often noticed on the intima of the large blood-vessels.

In the voluntary muscles histological changes similar to those before described as accruing to the heart are found, though they exist in other virulent fevers too.

Very naturally, knowing of the enfeebled heart-action and defective circulation, we look for hypostasis in the lungs. This is most noticeable in the most dependent portions of lung tissue. Œdema follows from tissue infiltration.

The liver is sometimes hyperæmic, but usually normal in appearance. The hepatic tissue softens. The cells become granular and their nuclei disappear. The biliary secretion is lessened, and in the later stations of the disease the bile becomes thin and parts with its pigment.

The kidneys take on parenchymatous changes. The epithelial structure becomes granular and the nuclei are not seen First the cortical portion is thus affected, but soon the pyramids catch the contagion. Sometimes albumen coexists with these changes, though this rule has exceptions.

In the central nervous system we find no tissue changes commensurate with the morbid and disturbed condition that obtains. Sometimes there is adhesion of the outer brain covering to the inner cranial surface Much vascular excitement often exists in the pia mater and in the cerebral structure itself. In the later stages œdema may result, with undue enlargement of the ventricles. Cases of cerebral hemorrhage and purulent meningitis have occurred.

FAMILY PREDISPOSITION TO INTESTINAL HEMORRHAGE IN TYPHOID FEVER.

By W. T. Pate, M.D., Gibson's Station, N. C.

To make clear the standpoint from which these observations are written, it is best, perhaps, to give a brief statement of the views that are generally held as to the relations of intestinal hemorrhage to typhoid fever. The lesions that produce intestinal hemorrhage in this disease are (1) catarrhal inflammation of the intestinal mucous membrane, and (2) inflammatory enlargement and subsequent degeneration of the solitary and agminated follicles. These lesions, in different cases, are of varying degrees of intensity. The changes the follicles undergo depend upon a complex process, and it is usually assumed that the progress of the intestinal lesions mark the clinical symptoms in a case as mild or severe. When there is intense hyperæmia of the intestinal mucous membrane early in the disease, capillaries may give way under the pressure and produce hemorrhage. Another cause of early hemorrhage is disintegration of the blood, allowing its easy passage through the walls of the vessels. In the latter case the hemorrhage is usually a manifestation of a general hemorrhagic tendency, and in the former the blood lost is small in quantity.

If the inflammatory changes in the solitary follicles and Peyer's patches produce only a softening and breaking down of the follicles, their contents are discharged sometimes with a small amount of blood. If the process goes farther and a mass of necrosed tissue is formed, when the slough is detached it may lay open vessels and cause considerable hemorrhage. Later than this vessels may be eroded by the spread of ulceration. This, in brief, is about what is known of the etiology of this complication of typhoid fever.

General hospital statistics show that intestinal hemorrhage occurs in about 5 p. c. of the whole number of cases. It is exceedingly rare in childhood; in adults more frequent in women than in men Different drugs and different methods of treatment have been charged with inducing a tendency to hemorrhage, only to be denied by equally as competent observers.

Hutchinson states that there can be no question that typhoid fever occurs much more frequently and is much more fatal in some families than in others, but what the peculiarities of constitution are that increase the liability to the disease, nor in what way the mortality is increased, is not stated. No cases indicating family predisposition to intestinal hemorrhage in typhoid fever have been recorded. The object of this paper is to record cases which strongly support the view that there is a peculiar cell life in some families transmissable from one generation to another that predisposes to this complication by its unusual action towards the presence of the typhoid bacillus in the intestinal tract.

The cases collected to support this subject occurred in my own practice and in the practice of the neighboring physicians—Drs. McNair, McLean, Smith, Prince and Hamer, to whom I am indebted for courtesies that have made it possible to report the cases together.

The family in question is that of Mr. O., white, a farmer, living near Gibson's Station. The family history is good. No idosyncrasy is shown towards any other disease so far as I have been able to ascertain. Mr. O's mother died at the age of 72 from pneumonia. His father died at the age of 51 from intestinal hemorrhage in typhoid fever. Mrs. O's mother died at the age of 49 from typhoid fever. Her father died at 74 from pneumonia. A paternal uncle, his three sons and one daughter all died from intestinal hemorrhage in typhoid fever in 1859. After these cases the family escaped this disease for many consecutive years.

The epidemic in which the cases occurred that are now to be reported began in October, 1884. At this time the family was called to the bedside of a married daughter in an adjoining county. This daughter had been delivered of twins, one living, one still-born child on October 1st. She died, it is stated, of pueperal fever, November 1st. Her infant was taken ill during the last week of October, and was carried by Mr. O's family to their home. With this case the report begins. It does not seem necessary to give a detailed account of each case, but to present results in brief form.

1884.

Case 1.—Female, third generation, aged six weeks, onset of fever October 26th, had intestinal hemorrhage, and died November 14th.

Case 2.—Sion O., married, second generation, aged 25 years, onset of fever November 10th, no hemorrhage, recovered.

Case 3.—Mary O., married, second generation, aged 25 years, onset of fever November 10th, died of intestinal hemorrhage December 2d.

Case 4.—Robert O., single, second generation, aged 19 years, onset of fever November 20th, died of intestinal hemorrhage December 2d.

Case 5.—Mrs. O., first generation, aged 59 years, onset of fever December 2d, no hemorrhage, recovered.

Case 6.—Martha A., married, second generation, aged 34 years, onset of fever December 1st, died of intestinal hemorrhage December 20th.

Case 7.—Kisler A., single, second generation, aged 26 years, onset of fever December 4th, died of intestinal hemorrhage December 20th.

1885.

Case 8.—Sarius O., single, second generation, aged 29 years, onset of fever June 20th, had hemorrhage July 2d, recovered.

Case 9.—Nancy H., married, second generation, aged 39 years, onset of fever July 25th, died of intestinal hemorrhage August 10th.

1886.

Case 10.—Elizabeth, married, second generation, aged 37 years, onset of fever August 4th, no hemorrhage, recovered.

Case 11.—Wm. O., married, second generation, aged 27 years, onset of fever August 19th, no hemorrhage, recovered.

1887.

Case 12.—Samuel H., single, third generation, aged 18 years, onset of fever June 11th, died of intestinal hemorrhage June 30th.

Case 13 —Hattie G., third generation, aged 8 years, onset of fever June 23d, no hemorrhage, died from exhaustion July 10th.

Case 14.—Wm. N.. married, second generation, aged 40, onset of fever June 24th, no hemorrhage, died of exhaustion July 10th.

Case 15.—Hector N., third generation, aged 12 years, onset of fever September 1st, no hemorrhage, recovered

Case 16.—Nathan H., third generation, aged 16, onset of fever September 1st, no hemorrhage, recovered.

Case 17.—Corrianna B , married, third generation, aged 17 years, onset of fever September 15th, died of intestinal hemorrhage October 6th.

1888.

Case 18.—Henry O., single, second generation, onset of fever May 10th, died of intestinal hemorrhage June 1st.

Case 19.—Blanche O., second generation, aged 11 years, onset of fever June 22d, had hemorrhage July 9th, recovered.

1889.

Case 20.—Julius A., third generation, aged 16 years, onset of fever September 22d, died of intestinal hemorrhage on October 8th.

Case 21.—Judson A., third generation, aged 14 years. onset of fever October 8th, had hemorrhage October 18th, recovered.

1890.

Case 22.—Julia W., married, second generation, aged 42 years, onset of fever July 1st, died of intestinal hemorrhage July 17th.

Case 23.—Bertha W., third generation, aged 10 years, onset of fever July 6th, no hemorrhage, recovered.

Case 24.—Younger A., married, second generation, aged 39 years, onset of fever August 20th, no hemorrhage, recovered.

Case 25.—John W., third generation, aged 14 years, onset of fever September 2d, no hemorrhage, recovered.

Case 26.—Kate W., third generation, aged 10 years, onset of fever November 1st, no hemorrhage, recovered.

Case 27.—Mattie N., third generation, aged 18 months, onset of fever December 23d, had hemorrhages January 9th, recovered.

1891.

Case 28.—Mollie N., third generation, aged 13 years, onset of fever March 15th, no hemorrhage, recovered.

Case 29.—Lucy O., third generation, aged 3 years, onset of fever July 5th, no hemorrhage, recovered.

Case 30.—Maggie N , third generation, aged 16 years, onset of fever July 9th, died of intestinal hemorrhage July 24th.

Case 31.—Mary O., married, third generation, aged 23 years, onset of fever August 5th, no hemorrhage, died September 15th.

Case 32.—William L., fourth generation, aged 8 years, onset of fever August 5th, had hemorrhage August 20th, recovered.

Case 33.—Sallie L., married, third generation, aged 26 years, onset of fever September 10th, died of peritonitis, following perforation of the bowels, September 28th.

Case 33.—Maggie S., third generation, aged 9 years, onset of fever September 25, had hemorrhage October 10th, recovered.

Of the 34 cases 15 were males and 19 were females. Intestinal hemorrhage occurred in 18, or 53 p. c. It was the immediate cause of death in 12 cases, or 33 p. c. The percentage of hemorrhages was the same for both sexes All ages, from infancy to 42 years, suffered alike. The hemorrhage occurred on the first day of the fourth week in 2 cases; during the third week in 14 cases, and during the second week in 2 cases. In all cases the blood lost was considerable, and in those in which the hemorrhage was the immediate cause of death, it was sudden, free and profuse. There was no hemorrhagic tendency in 'the family. In parturition, accidents and surgery there is no more tendency to bleeding than in other patients.

The virulence of the poison does not explain these cases. They extended over a period of seven years. The bacillus, even if there was reason to believe that it was very virulent in the beginning of the outbreak, had ample time to become attenuated, Besides, its virulence was not developed in other patients. There occurred in my own practice 117 cases excluding this family, many of them the nearest residents to the farm house (Mr. O's home) where the outbreak began, with 4.27 p. c. of hemorrhage and only one immediate death from this cause. The mortality in 117 cases was 8.73, which, considering the rude nursing and crude feeding in many of these cases, would not indicate a virulent poison.

It was not the rule that the severest cases were the most liable to hemorrhage. Three very mild cases occurred in my own practice, viz: 19, 22 and 34. I did not see these patients at any time prior to hemorrhage with the pulse over 100 nor the temperature above 103° F., nervous symptoms slight. All had hemorrhage, and one of them (22) literally bleeding to death within an hour. Case 3 complainining of headache, with temperature slightly elevated, continued to

assist in household work up to the time of hemorrhage, from which she died during the evening of the day on which the bleeding began.

Other cases could be quoted to show that there was no definite relation between the severity of these cases and the amount or frequency of the hemorrhage.

It is not my purpose to attempt a solution of this problem of the etiology of the intestinal hemorrhage in this family, but simply to record this series of cases occurring in private practice that undoubtedly support the view of family predisposition.

DISCUSSION.

Dr. Long had listened to the paper with much interest, and told his experience in that line. He was called to attend a young man who had typhoid fever. In about two weeks the young man died of intestinal hemorrhage. Several cases of typhoid fever had occurred in that family, and this was the fourth death from hemorrhage. These cases did not all occur in the same year, but two of them did occur within three weeks of each other, those of the young man and his sister. They were, however, separated 200 miles from each other, and therefore the hemorrhage could not have depended on the form or type of the fever.

Dr. O'Hagan did not agree with the author of the paper. During the late war typhoid fever of great violence had broken out in the regiment, intestinal hemorrhage being one of the most marked symptoms in all the fatal cases, and in all the cases thore could hardly have been a family predisposition to the disease Intestinal hemorrhage in typhoid fever is due to the ulceration of the Peyer's glands. The ulceration may be due to a peculiar virulence of the poison, to some climatic conditions, or to some intensification of the typhoid poison caused by drinking infected water. The hemorrhage was not confined to the severe cases. Had this diathesis toward hemorrhage existed, it would certainly have shown itself in other conditions. But the Doctor says that in obstetric and surgical cases the patients were free from hemorrhage. He thought that that proved the improbability of hereditary diathesis. He said that they must fall back upon local causes, that is, the extent of the ulceration of the glands.

Dr. Fox told of a family in his section in which every case of typhoid fever died of hemorrhage. In the family there had been five deaths from hemorrhage Those cases were peculiar in the suddenness and the profuseness of the hemorrhage and the deaths following soon after. In some cases of the fever hemorrhage relieved the patient and was a turning point in favor of recovery, but in this family it always ended in death. He thought that in this family there was a tendency towards hemorrhage.

Dr. Sykes believed in the hereditary tendency in certain families, and told of a family in which, when typhoid fever broke out, hemorrhage was always expected.

Dr. Pate, in closing the discussion, said that, although the hemorrhage was caused by the ulceration of the solitary follicles and Peyer's patches, yet it did not account for the hemorrhage in certain families. In the family to which he had referred there had been this predisposition for generations, for 40 or 50 years, and the local causes had not been the same in all the places and all the times. He thought that the cells formulating these glands were probably more susceptible in that family to the typhoid fever bacilli than in most families, and that larger and deeper sloughs were formed.

OUR INDIGENOUS MATERIA MEDICA.

By Thomas Hill, M.D., Goldsboro, N. C.

Having been requested by the Chairman of the Section of Therapeutics and Materia Medica to write a paper for the Society on some of the indigenous remedies used in practice by myself, I will endeavor to comply with the request. But when I seat myself to begin I find myself confronted with so many of these remedies that it is almost impossible to make a selection. However, as the Editor of the North Carolina Medical Journal, in the February number, suggests to those who write papers that there may be more brought out in the discussion of a paper than in the article itself, I will try and be as concise and practical as possible. And in the beginning let me say to the younger members of the Society that if they will only give a little more attention to the study of botany, they can derive the greatest pleasure and profit, while they are riding through the country, in studying the different plants and flowers they may see by the roadside. And they will be surprised at the number of them they will find to be of practical benefit to themselves and patients.

I will begin with the *Ambrosia artemisiafolia*—Rag Weed—Carrot Weed. Grows in cultivated lands and pastures; hæmostatic; useful in all passive hemorrhages, and particularly in purpura hemorrhagica; also applied locally to bleeding surfaces; used in form of infusion, ½ oz. to pint of boiling water; when cold, wine-glassful every half-hour to hour, till hemorrhage ceases, then less frequently; in hæmatemesis, the dried leaves chewed, and swallowing the juice will arrest the bleeding almost instantly; in epistaxis, take the infusion and apply locally in form of plug to nostrils, or inject a strong infusion.

Phytolaccæ baccæ—Poke-berries—a most valuable remedy in acute articular rheumatism. A saturated tincture of the berries in whiskey, taken in teaspoonful doses, every three or four hours, will cut short the disease in less time than any remedy I have ever used. I have tried the tincture of the root, and also the fluid extract of the Pharmacopœia, and though in some instances I have had good results, yet in others I have failed and had the happiest effects with the berries and whiskey. I have never seen any toxic effects. A tincture of the root is almost a specific in conjunctivitis and also in mastitis.

On one occasion I was called five miles into the country to see a case of menorrhagia—woman, reported to be flowing to death I took from my office p sulph. ferri, ergot, etc., etc., and a glass speculum—the only one I had. When I got to the place and took out my medicine chest, what was my dismay to find my speculum broken. Now, what was I to do? Just then I remem-

bered having seen a short time before an article by Dr. E. A. Anderson, of Wilmington, recommending *Urtica urens*, Stinging Nettle, as the remedy for this trouble. As I came into the field, before getting to the house, I had seen some of the nettle growing. I immediately got a hoe, dug some of the roots, washed them and gave the woman to eat, in the meantime preparing an infusion; before I got this ready my patient was safe, and I used nothing else. This remedy is highly spoken of by Dr. Porcher in the *Resources of Southern Field and Forest.*

Vaccinia crassifoliam—Running Huckleberry. How often in the fall of the year do we have patients, children particularly, living in our low swampy western country, after having chill and fever all the summer and fall, with enlarged spleen, swelled bellies and limbs, tallow-faced and anæmic. Quinine has no effect, iron and arsenic does no good, they go on from bad to worse, and you think they must die. Now, order for them the running huckleberry made into a strong tea, let them drink this *ad libitum*; the secretions, before locked, seem to open by magic; appetite improves and spirits revive. Now give a drop of tr. ferri murriat, in plenty of water, or one of Fowler's solution of arsenic, three times a day, and see how soon your little patient will look rosy and healthy. This remedy is also indicated in other forms of dropsy, also in renal suppression, and will soon restore the action of the kidneys.

On the 18th September, 1859, I was probably the happiest man in the State. On that morning my first boy was born—a fine, healthy, 10-pound fellow. Everything went on well till the third day, when, from injudicious feeding, his bowels were upset. I gave all the simple astringents I knew. Nothing did any good, and finally I sent for our old lamented friend, Dr. Summerell. I met him a short distance from the house, telling him I found nothing would do any good. Every particle of the fluid in the child's body seemed to have passed out by the rectum, his skin, shriveled and shrunken, seemed to cling to his bones, and his face had the appearance of an old man. The Doctor, being a practical man, asked me to go to a persimmon tree by the roadside, loaded with half ripe fruit, and get a handful of them. I did so. So soon as he got to the house he called for a cup and spoon and sugar, bruised up the persimmons, got a spoonful of the juice, added a little sugar and gave to the child. I had heard of miraculous cures, but then I saw one The bowels were checked immediately, and in a few days the child was all right. Since then every fall I have prepared a bottle of the syrup of green persimmons, and am satisfied that I have saved more than one life by having it.

About three years ago Dr. Napier, of South Carolina, reported some cases of epilepsy treated with saturated tincture of *Solanum carolinensis*—Horse Nettle. I had a quantity of the tincture prepared from the balls or fruit, and treated three cases—one, a man aged 21—spasm every month—commenced treatment March, 1890; 10 drops three times a day No spasm up to October 1st; discontinued remedy; spasms now at long intervals.

A lad 12 years—spasms eight years, once or twice a week; 20 drops of tr. three times a day; no spasms since.

Other cases were treated showing the great value of the remedy as an anti-spasmodic.

One more remedy and I will close. If you are ever stung by a bee, wasp or yellow jacket, saturate your handkerchief with fresh urine and apply to the spot, and see how quickly you will be relieved.

And now, Mr President, I will bring my paper to a close, with the advice of an old physician, who practiced medicine forty years, to the younger members of the profession, to pay more attention to the study of botany, and to keep their eyes and ears open, and they will frequently get some valuable hints from humble and unexpected sources

DISCUSSION.

Dr. O'Hagan stated that he was surprised that Dr. Hill had not mentioned or communicated that remedy for epilepsy in the State Medical Journal. He said that he had several cases of epilepsy on hand, had tried various remedies, and the next summer he proposed to try Dr. Hill's remedy. If it does possess any power over eiplepsy it will certainly be worth a great deal to the sufferers from that malady.

He mentioned the use of the running huckleberry, and if it does possess the virtues attributed to it, it is certainly invaluable. He stated that he had several cases on which he was going to try the remedies, and hoped he would have as good results as Dr. Hill had experienced.

Dr. Sykes related two cases on which he had tried Dr. Hill's remedy. He had a case of hæmorrhage and everything that he tried met with no success, until he remembered Dr. Hill's suggestion. He picked out some dry weeds from a stack of hay and made a tea, and in three or four hours after the man began to drink it he had no more trouble. The last year he had had a case and had given it up for dead. But he gathered some weeds and made a tea. In a few hours after beginning to drink it the man was relieved and had no more trouble. He is now well and strong.

Dr. Poole mentioned a case of epilepsy. A boy about 12 years old had frequent attacks. He used an extract of horse nettle prepared by Messrs. Parke, Davis & Co. He began by giving 8-drop doses three times a day and gradually increased to 15 drops. The attacks became less frequent and less severe. The treatment was kept up, and after a while the attacks entirely disappeared. In about a year the company got out of the remedy and it could not be gotten for four months. The attacks returned, but he had only three or four in that time. Then the remedy was obtained and the boy put regularly upon it. In a year he has had not one attack. He believed the boy cured, but was afraid to discontinue the use of the remedy.

Dr. Kent had had some experience in the use of rag-weed in arrest of hæmorrhage. His experience had been favorable—at any rate it stopped the hæmorrhage. The paper just read called to his mind a subject which he had investigated to some extent a few years ago. He said that, believing that a great many valuable remedies have been discovered by the laity, and that among the laity of his section there was a certain plant believed to be a sure cure for rattle-snake bites, he concluded that he would endeavor to find out what the plant was, and discover if there was any real virtue in it. He obtained a number of samples of the plant from respectable persons, with their certificates properly signed. The samples were not all from the same vicinity, but some were from the surrounding counties. He could not give the botanical names of the plant, but he knew it by the common names used in his region. He investigated the matter and found that there was no real virtue in the plant.

SOME RECENT IDEAS IN SURGERY.

By R. H. Stancell, Jr., M.D., Margarettsville, N. C.

It must ever be a welcome task to the true physician—that is, to the physician who follows his art for his art's sake, to put forth his best efforts toward the proper accomplishment of any task which his seniors may set him to perform. And when a task, however difficult, falls to the lot of one so young in the cause as is your very humble servant, he must be a most unworthy follower of our common mistress who would not do his best to properly discharge the trust. So, gentlemen, while none of you can be more sensible of the shortcomings of the paper I have the honor of submitting to you as my report as Chairman of the Section on Surgery and Anatomy than I am, still I crave your kind indulgence for its faults, and can only assure you that its shortcomings are not due to lack of effort on the part of its author. I shall not, gentlemen, attempt to lay bare any new discoveries which I or any of my friends have made, nor shall I burden you with any theoretical compositions, nor propositions of my own, nor again shall I impose upon you reports of cases which I have cured, but I shall attempt to tell you briefly of some of the important advances made in the last year or two in surgery, and also to present a brief review of the most important thoughts and improvements suggested during the year. The gentlemen who are to follow me will elaborate on their various subjects, so I shall pass briefly over my field and leave you to their tender mercies. I invite your attention first to the subject of

Abdominal Surgery.—The surgery of to-day is, one may almost say, of the abdomen. What was such a short while since a tract of country almost unexplored is now laid open freely and its contents "otomized," "orrapnized" and "ectomized" as occasion may demand without fear, and we may say without stint. The advances here have been almost miraculous. Fistulæ are made into the stomach and bowels, abscesses opened and cleaned, portions of liver and kidney removed, and exsections of portions of gut made as a matter of every day occurrence. Where so much material lies around loose it is hard to choose the best, but I first invite your attention to

A New Method of Intestinal Anastomosis.—Connell has devised a method of accomplishing this without plates and with only two knots The cut ends of bowel having been closed, the subsequent steps are as follows: The closed ends are passed by each other and openings of desired length made in their convex borders. The opposing walls are then placed side by side, so that the incisions are parallel. A suspending tread or loop is run through the bowel at the end of each incision by passing the needle from within outward through the walls of each portion, and then both ends are

brought up through the openings and tied. These suspending loops are entrusted to an assistant. When there is much tendency to eversion, or when the incisions are very long a third thread may be introduced midway between the other two. As the assistant makes traction upon these threads the opposing serous surfaces are brought into contact and the first sutures quickly inserted. This is of looped stitches made by introducing the needle at the end of one incision from without inward, and then passing it back and forth through all the coats till the other end is reached. The needle is then passed from within outward back to the point of beginning, leaving each stitch as a loop on the side where taken. The walls are now separated as far as the looped stitches will allow, and the suspending threads drawn upon the other side; this brings serous surfaces of the opposing walls into opposition. A second set of sutures is then introduced like the first, except that they are drawn taut. The suspending threads are then withdrawn and the loops of the first suture drawn up. The ends of both sutures are drawn tight and tied, not cutting off the ends until both knots are made. Then the ends are cut close so as to leave no dangling drains, and union by anastomosis is complete.

The *Murphy button* is an appliance recently brought to our notice, the principle of which is sure to prove useful. It is severely criticised by many surgeons, among them being Professor Senn; but in spite of all this the principle, if not this particular adaptation of it, has come to stay. It consists of two hollow metallic cup-shaped hemispheres with a stem and a central perforation in each one When clamped together these hollow stems telescope, forming a smooth round button. It is used for the purpose of making anastomoses wherever desired. In performing an anastomosis with it the openings in bowel are enclosed in a purse-string suture, which is tied around the stem of one-half of the button. One half is thus tied in each incision, and they are clamped together. This brings serous coats into perfect apposition and adhesions form around the button quickly; meantime, according to the author, a pressure atrophy of the clamped parts takes place and the button is relieved and passes out through the intestine. Senn claims that it is gangrene, and not atrophy, which releases the button, and holds that the procedure is in consequence not safe. It is already conceded to be the most practicable device for performing cholocystenterostomy in the least time, and it is also claimed that it will find a field in the end to end anastomoses, gastrostomies and gastroenterostomies and in the closure of fecal fistulæ. The strongest argument in its favor is that it makes these long and tedious operations easy, short and comparatively safe. Dr. Murphy reports 17 cases of cholocystenterostomy, all of which recovered as against a former mortality of 35 per cent.

Appendicitis.—As most of you know, gentlemen, this affection is, so to speak, all the rage—so much so that a great many things which were formerly regarded as separate maladies—volvulus and other obstructions—have come to

be called appendicitis. Of the real appendicitis one form is known as recurring; that is, there are repeated attacks followed by intermissions. In such cases abscesses repeatedly form and discharge through the appendix into the bowel. Such cases should be operated upon during an intermission. The operation is indicated because there is no knowing when the pus may go somewhere else.

Intestinal Sutures.—Perhaps nothing is more annoying to a surgeon than his first attempt to suture intestine. The fold of gut persists in slipping away from the fingers, or perhaps, if it be firmly held, the needle either goes through all the coats or else does not go deep enough, and the result is unsatisfactory. There is no saying at what time any practitioner may be called upon to sew a torn or cut bowel, and every one should familiarize himself with the manipulation of it by experiments upon the intestines of animals.

The Lembert suture is the most commonly employed in the closure of transverse tears or cuts in bowel. To insert it the needle enters the serous coat at a quarter of an inch from the margin of the wound, goes down to the submucous coat, and emerges again at a point half way between its insertion and the wound. The needle is then passed across the cut and the same steps taken on the other side. When tied this suture brings serous surfaces into apposition.

The Curtis rectangular suture is used in cuts in the long axis of the bowel. It is a continued suture in which the thread changes its direction at a right angle at every turn. The thread is passed through a fold of membrane at one end of the wound, and then made to travel in the sub-mucous tissue to the point where the first stitch is to be made; here it emerges, crosses the wound and again goes down to the submucous coat. There it turns and goes parallel with the gut till it emerges to cross again. When the entire length of the wound has been traversed and the thread is drawn taut, the edges will fold in and serous surfaces be brought into apposition.

Surgery of the Kidney.—Operations upon this organ are now of frequent occurrence. It has been demonstrated that it is the easiest and safest of all the abdominal organs to remove or to handle. The anatomist tells us that the kidneys, two in number, are situated in the back part of the abdomen, placed in the loins, one on either side of the spine. They are placed behind the peritonæum and surrounded by a mass of fat and areolar tissue, their upper border is on a level with the twelfth dorsal vertebra, their lowest extremity level with the third lumbar. Relations: The diaphragm and the fascia over the quadratus lumborum and psoas magnus muscles. These expressions were read in Gray a long time before it occurred to any one that between the skin and kidney there is nothing which may not be safely cut. So, when a diagnosis of stone, abscess, dilation or floating kidney can be made out, it is

proper to cut down upon the organ and either extirpate it or set it to rights. Hemorrhage in cut kidney or cut liver is profuse, but easily checked by pressure.

Amputations—Senn's Bloodless Method of Hip-Joint Amputation.—The external incision is that of Langebeck for resection, eight inches in length, directly over the great trochanter, beginning at a point three inches above it. All vessels which bleed are tied. The trochanteric attachments are then severed close to the bone, the digital fossa cleared and the tendon of the obdurator externus cut. The thigh is flexed, adducted and rotated inward and the capsular ligament cut at its upper and posterior aspect. The rest of the capsule is severed with the leg in slight flexion. The femur is now dislocated, the head of it cleared and pushed through the opening far enough to make a low amputation. So far there has been no bleeding if the knife has been carefully used. At level of the lesser trochanter a strong forceps is pushed through the tissues just behind the adductors, when it reaches the skin that is cut through and the tunnel enlarged by opening the forceps and pushing them backwards and forwards. A piece of ¾ inch rubber tube is now doubled, seized in the middle by the forceps and drawn through the wound. It is then cut in half, the limb rendered bloodless and the anterior segment constricted by tying half of the tube around it. The other piece of tube is tied behind, brought over to the front and tied again. Muscular flaps are to be avoided. The anterior flap goes down to muscle, begins at the lower end of the straight incision, goes downward across the thigh and ends near the incision holding the constrictors. The posterior flap is one-third shorter. The muscles are divided by the circular incision slightly concave. The sciatic nerve should be resected to the extent of an inch and the arteries tied with catgut. The femoral vein and artery are both included in a second ligature half an inch above the first one. These double ligatures are safe procedures in all large arteries. While the posterior constrictor is removed a hot gauze compress is placed on the posterior half of the wound and firm pressure made. This checks oozing. When the compress is removed all bleeding vessels are tied. The anterior half is treated in the same manner. These constrictors enabled Senn to do this operation with a loss of less than one ounce of blood. It requires no skilled assistant and can be done with a pocket case.

Wyeth has described at full length his method of doing the same operation. It differs from Senn's in that he transfixes the limb high up with two large skewers, above which the tubing is tightly tied. He makes a circular incision at the middle of the upper third and a cut up the side to the great trochanter.

Anæsthetics.—No question has stronger claims upon the attention of the surgeon of to-day than this one. The rapid progress of surgery, which has opened so many new fields of work in the past few years, would be at a standstill without their use. Without a good anæsthetic, fearlessly administered, the

eurgeon's hands are tied and he is powerless. These useful agents, which in this way do so much good, are equally as powerful for harm. Upon their proper administration depends every operator's success. Since the death, last year, under ether, of a prominent man, the journals have been full of all sorts of conjectures, statistics and reports concerning the best anæsthetic and the best and safest mode of administering it, and, after a year of this discussion, we are in the same profound state of knowledge in which we were before. It is a practitioner's duty to give an anæsthetic whenever he thinks he can operate or diagnose better with its help. The statisticians claim that ether is safest of all. A death is reported from the use of ethyl bromide in Bilroth's clinic. This is as dangerous as chloroform and no better than nitrous oxide.

Konig claims that no patient should die from respiratory failure under chloroform, but that sometimes heart-failure cannot be prevented. He counteracts it by strong rythmical blows over the heart. Occasionally, after a long time, the pulse will be isochranous with the blows.

Von Barbledon states that since 1848 he has used chloroform in a thousand cases annually without a fatal case. The distinguished Dr. Chisholm, of Baltimore, whom we are glad to see present, has used it over thirty thousand times without a fatal result. Ether is very nauseating and depressing in its after-effects; so much so that the quick recovery from chloroform narcosis must make it the favorite when it is safe. I have several times given chloroform in my office and had the patient ride to his home in two hours or so afterwards. I never saw a patient recover from ether effects in less than eight or ten hours. In head and neck operations, too, ether is likely to infect the wound. It is also likely to explode if lights are not carefully watched.

Porter, of New York, wrote quite a long article in the July *Post-Graduate* upon the condition of the urine in regard to anæsthesia. He concludes: that ether aud chloroform act upon the same principle, but with results developed by slightly different methods; that both are capable of producing death at the time of anæsthesia—chloroform more frequently than ether; that ether causes as many deaths as chloroform, if not more, but the fatal issue is delayed till the patient is removed from the table; that, by careful study of the density of the urine and its causes, we have positive information as to the nutritive condition of the system, and are thus forewarned. It also enables us to judge which anæsthetic is best adapted to the individual case. We are taught that neither ether nor chloroform should be given till the glandular organs are put in the best possible condition to withstand the extra strain. When this is a general rule many cases which now prove fatal will be saved. While in some cases it is clear that death is directly due to the effects of chloroform or ether, this fact should not deter us from using them, but on the contrary, should stimulate us to be more thoroughly masters of their action upon the system, and to guard against their ill effects. When all this is accomplished, chloroform will most

probably be the favorite anæsthetic. The *London Lancet* has had a commission during 1893 to examine and report upon chloroform. Its report, after the usual preliminaries regarding care in its administration, winds up as follows: "If no other purpose were served by our report than to direct attention to the really small death-rate under anæsthetics properly administered, our labor would not have been thrown away; but we believe that very much more will follow, and it is, we hope, not too much to say that when the clincal and physiological aspects of the question can be carefully prepared, and when those who support the views appropriate to each school of thought can together trace the teachings of the two sets of facts, we may at length arrive within measurable distance of a solution of what is perhaps the most important question of modern surgery.

Bladder and Urethra—Gonorrhœa.—The time-worn subject of gonorrhœa has received its usual voluminous quota of discussion during the year. Saalfied now classes it with the eruptive fevers in the sense that it is an affection from which few adult males have been spared He also announces the newly-discovered fact that the therapy of the affection is but little understood, and calls the attention of the profession to the fact that dancing, riding and other violent exercises are injurious during the inflammatory stage. He recommends the wearing of the suspensory bandage during the day and linen wrappings at night. He says that cheese excites erections and prohibits it. Camphor, lupulin and antipyrine with bromide of potassium are recommended in painful erection. . . . Local treatment consists in oft-repeated local washing in warm water. Injections of 1 p. c. solutions of thallin, of sulphocarbolate of zinc, zinc sulphate and lead acetate and others, too numerous to mention, salol, oil of santal, copabia and cubebs can be given by the mouth. His therapeutics is better than his classifications, for the above methods are mostly in vogue in its treatment.

Janet proposes the following mode of aborting gonorrhœa. He first washes the prepuce and glans carefully, and then irrigates the urethra in its entire length, as well as fills the bladder with a solution of potassium permanganate, varying its strength from 1-1000 to 1-4000, according to the degree oiinflammation. After the washing the patient is directed to change his linen and again wash the glans and prepuce carefully with a a solution of 1-200 potassium permanganate. The more acute the inflammation the oftener should the irrigation be repeated. In the first few hours after the irrigation there is a whitish secretion followed by clear serum, sometimes slightly bloody, then absence of secretion, after which the purulent discharge reappears. The irrigations should succeed each other just often enough to prevent the recurrence of the discharge. Usually twelve or fifteen irrigations will be sufficient to abort the disease. If so, there is no discharge unless the solution has been too strong. If the disease recurs another course of irrigation is administered, and if there

still be discharge a weak solution of silver nitrate, 1-2000, is employed in the anterior urethra. The drug causes slight œdema of the urethra, which change in their culture ground so affects the gonnococci that they cease to grow, and if the condition is maintained the destruction of the germs is sure. Discharge almost ceases from the first and 80 p. c. are cured. The objection to the treatment is that it is troublesome both to the surgeon and patient.

Schmidt, on the basis of a single case, suggests that the curative effect claimed for erysipelas in the case of certain malignant growths and of ulcerating gummata may also obtain in gonorrhœa. A young girl with gonorrhœa, which was known to be gonorrhœa by the presence of gonnococci in the discharge, erysipelas developed on the upper third of the thigh, and in two days the gonorrhœa had entirely disappeared. There was no return of the discharge two months later. What do you thing of that?

A New Method of Treating Hypertrophical Prostate.—In a comprehensive study of the present position of the surgery of the hypertrophical prostate, J. William White proposes the removal of the testicles as a possible means of causing involution of prostate overgrowth. From a series of experiments on dogs he claims that castration is invariably followed by atrophy, first of the glandular, and then of the muscular elements of the prostate, and that there was consequently a coincident reduction of both bulk and weight.

Griffith obtained similar results and cited post-mortems which showed that in man castration exerted a powerful influence on the nutrition of the prostate. He quotes Hunter, who observed that the gland in a bull was soft and bulky, while in a steer it was hard and ligamentous. Griffith made autopsies on two dogs and two cats which had been castrated years before. In all these animals the gland had been transformed into a mass of fibrous connective tissue containing the remnants of gland tubules and a few atrophical muscle fibres. As to the employment of the operation as a therapeutic procedure, the final answer is of course with the patient. The proposition to thus treat the disease is startling, though quite as reasonable as ovariotomy for uterine fibroids. White states that if equivalent results were promised there would be no lack of patients willing, for the sake of relief from their untold sufferings, to undergo the operation and to sacrifice what little sexual power remained to them.

Coole calls attention to the difficulty of effectually draining the bladder after supra-pubic cystotomy. In a majority of these cases the lining membrane of the bladder is in a state of chronic inflammation, suture is contraindicated, and the wounds in both the abdominal wall and bladder must be left open. He uses an ordinary glass drainage tube packed with a wick of gauze. The free end of the gauze, some three feet long, is carried through a rubber tube to a bottle beneath the bed.

Bones and Joints.—Bier calls attention to the treatment of tubercle in the bones and joints by means of passive hyperæmia induced by rendering the

limb bloodless and applying a constricting band just above the tubercular swelling. This is kept up for months and good results and even cures are reported from its employment. Bier believes that it cures by causing fibrous tissue formation around the seat of the disease, while Heller advances the theory that the constriction keeps the excreta of the bacilli from being disseminated until they acquired sufficient concentration to kill the bacilli themselves. It is probable that good will come of this treatment. Senn treats intra-capsular fractures of the neck of the femur by means of a dressing which aims to produce artificial impaction or a position closely approximating it. The thighs are fixed on the pelvis with a plaster case provided with a pad which can be screwed against the great trochanter as the cast gets loose. Post-mortems have proven that several cases treated in this way have gotten good union. The only trouble will be to diagnose a fracture which is entirely intra-capsular, since entirely different treatment is indicated if the fracture extends outside the capsule. He also makes an earnest plea for more frequent recourse to direct fixation of fragments in compound and ununited fractures. He claims this is indicated in all compound fractures which do not unite by ordinary treatment, and in all ununited fractures which require operative interference. It is also justifiable in certain forms of subcutaneous fracture where reduction and retention are not easily secured. Free exposure of the fragments in compound fractures secures the most favorable condition for thorough disinfection. Perfect reduction and direct fixation are the most reliable prophylatic measures against delayed union, non-union and deformity. A compound fracture should be regarded as an injury to soft parts and treated on the same principles. Fractures not requiring drainage should be closed. The mainstay of the treatment is the external splint, which should be so applied as not to require changing.

Mouks describes a very ingenious and simple method of treating fractures the deformity of which shows an inveterate tendency to recur. This consists in applying a light dressing of plaster and then moulding the bones into proper position by digital pressure and traction, the former being applied on the outside of the dressing. The bones are held in place by pressure until the plaster hardens. When it is firmly set there is no further tendency of the bones to slip out of place.

Operation for Subluxations of the Elbow.—Tilloux operated on a case five months after injury. The joint was freely exposed by a lateral incision. He found a growth of osteophytes interfering, whtch he cut away. The articular surfaces were resected, the cut triceps stitched and the arm dressed in a moulded splint. Good results. Quem in a similar case resected, but with a poor result. Berger advocates complete resections.

Brain.—Adam Kiewicz claims that the various antiseptic solutions exert a harmful influence on the brain when used in the treatment of wounds of that

organ. Solutions of carbolic and boric acids were injected into the brains of animals with a Pravaz syringe and various disturbances were produced, and in most of the experiments the animals died. There is always danger of producing a meningitis after the use of aseptic solutions. At the same time no bad results have been reported after the use of sublimate or carbolic acid.

Bubo.—Otis treated 16 cases of suppurative bubo as follows: The skin was cleaned with green soap, a small opening made with a bistoury and the pus evacuated. The cavity was irrigated with bichloride, 1-1000, and packed with 10 p. c. of iodoform ointment introduced through a syringe. A compress of bichloride was the dressing, held in place with a bandage. The wound was given the same treatment on the fourth day. The advantages of this method are, it is simple and safe, and it is the quickest way to cure. The patient is able to go about during treatment. The first gland being aseptic, it is less likely to affect others in the chain. It leaves no tell-tale sore and it does not interfere with subsequent operations. In Otis' 16 cases 9 were cured in six days, 3 in twelve days, 1 in fourteen days, 1 in twenty-three days and 2 deserted during treatment. This method is worthy of a trial.

Wielander tried to abort buboes by injecting benzoate of mercury into them. He was successful in 87 p. c. of the cases he treated. He used benzoate of mercury, grm. 1, sodium chloride, grm. 30, water, grm. 100.; 1 c.c. and apply a compress. The injections were followed by swelling, but resorption took place in about three weeks. One injection was usually sufficient, but twelve were made in one case in eight days. I tried it in one case and failed.

Richter has employed injections of this drug in 30 cases of bubo. In 2 of them swelling of the joints resulted. In 14 cases, where there was no fluctuation, it resulted after injection. In 13 cases, where already present, it was increased. Disappearance of fluctuation with absorption resulted in only 3 cases. As fluctuation increased after every injection puncture was made, the puncture was kept open with a strip of gauze and daily irrigation of sublimate made. Twenty-five cases of the thirty were cured, the average being in twenty-seven days. In 12 cases the injections were repeated.

Cancer.—Coley has collected a table of 38 cases of cancer in which erysipelas occurred accidentally and with intent—accidentally in 23 and inoculated in 15, 17 had sarcoma, 17 carcinoma and the other 4 not stated. Of the carcinomata 3 were permanently cured, 1 was well five years after the inoculation. Of the other 13, 10 showed marked improvement, which, although temporary, undoubtedly prolonged life. One case died from the erysipelas and the rest showed improvement. He injected fluid cultures deeply into the tumors. There was a marked reaction, the temperature often going to 105°. The effect is more marked on sarcoma than on carcinoma, but in all cases the tumor decreased in size and ceased growing. The toxic product of the germ is thought to produce the curative effect rather than the germ itself. The

author concludes that the curative effect of erysipelas upon malignant growths is an established fact. That the treatment may be employed in inoperable tumors without great risk, and that the curative action is systemic and due to the products of streptococci, which may be isolated and used without producing erysipelas.

This treatment should not be much employed till further facts are proven concerning its safety. If the statements of the author be true, we would at last seem to be on the road to overcome the cancer scourge, which is as terrible to the surgeon as phthisis pulmonalis is to the physician.

Adamkiewicz states that there can be no doubt but that cancer is due to a micro-organism. The parasite, though not positively identified, is a protozoa. It is well known that every organism perishes if saturated with its own products of elimination ; hence cancer can be destroyed by the ptomaine developed as the result of its activity.

The ptomaine has been termed cancroine by the above mentioned long-named surgeon, and is analogous to the cadaveric neurine composition, $C_5H_{13}NO$. If this be injected into a man with a cancer, say of the lower lip, the lip swells, the tumor suppurates, and if the injections are systematically continued the tumor disappears. Corresponding with this the glands decrease in size. It is certain that nurine acts directly on cancerous tissue.

Bernhardt has employed salicylic acid in the treatment of new epithelial formations with good results. He injected a solution of 6 p. c. acid in 6 p. c. alcohol into the tumor in 6 cases, all of which recovered or were markedly improved. About 1 c.c. was the quantity used and it was followed by febrile reaction.

Hydrocele—Dr. Joseph W. Hearne treats some cases of hydrocele in the following radical manner: Freeze the line of incision at the most dependent part of the sac, use the chloride of ethyl for freezing, cut into and empty the sac and thoroughly dry it out with sterilized cotton. The sac is then mopped out with pure carbolic acid and an iodoform gauze plug introduced and left in forty-eight hours. Sac and skin are closed with catgut sutures to within ½ inch of the lower angle. Dress with gauze. Use strictest aseptics. It is adapted to thin-walled sacs.

Guillot has had something to say in the journals concerning the practicability of the operation of orchidopexy, which consists in placing undescended testicles in their proper place in the scrotum. The testicle being freed from its attachments in the abdominal cavity is anchored in the scrotum, being invested in a tunica vaginalis specially made for it out of the parietal layer of the peritoneum. In the case of a boy 15 years old the testicle grew to normal size and the boy ejaculated semen containing healthy spermatozoa.

Rectal Surgery.—Quenns's operation for piles, a new method of procedure, is a modification of Whitehead's operation. He holds that the other method is

open to objection on the ground that coaptation of the raw surfaces is difficult, that if the bowels move within six or seven days there is dnnger of a bad result, and that if union is not complete at every point there results a cicatrix exceedingly liable to ulceration. He simplifies by making an incision half way round the anus at a point a little without the cutaneous border. He then dissects up this flap and cuts away all the tissues except the mucous membrane. After controlling the bleeding he stitches this flap back and repeats the operation on the other half of the gut. The rectum is packed with iodoform cotton to keep the membrane against the gut-wall, and the sutures removed on the fifth or sixth day. There is no traction on the suture, the membrane is left entire and does not contract. Fecal evacuation will not tear them loose and asepsis can be observed.

Bicelaire proposes another new method for the treatment of hæmorrhoids, which, although he has not put it into actual practice, is yet sufficiently ingenious to be worthy of a trial. He claims that of the sub-mucous tissue he removed from the bowel and the mucous membrane made to unite directly with the muscular coat, that the condition favorable for the formation of hæmorrhoid will be removed and that a radical cure must result. He would simply dissect the mucous membrane up to a point above the origin of the swollen veins, and then he would stitch it back into its place again. He holds that from this union there would be enough cicatrical tissue to cure the trouble by shutting off the veins when it contracts When the knife is contraindicated he would use the galvano cautery. This, when dry, will prevent such bad effects. The hot electrode is then introduced at various points near the anus, and carried beneath the mucous membrane up to the upper sphincter. This, of course, would cause cicatrices to form and draw the mucous membrane close enough to the muscular coat to prevent the veins remaining any longer dilated.

This method may be practicable if the mucous membrane be not burned, cut or torn, but any procedure which causes a cicatrix to form in the rectal mucous membrane is not good surgery, because there is danger of inducing stricture of the rectum.

Surgery of the Spine—Delorme reports two cases of spinal operation. The first was for hemiplegia. There had been kyphosis and progressive paralysis for eleven months. The patient had lost control of both bladder and rectum; laminectomy was done and local pachy-meningitis was found. A bone abscess between the cord and the vertebra was opened and curetted. In twenty-four hours sensation returned to the lower extremeties and also control of both the bladder and rectum. This case recovered

The second case had acute paraplegia, with intermittent contractions of the right arm; laminectomy of the eighth, ninth, tenth and eleventh dorsal vertebræ was done. Extensive meningitis was present and fungus growths removed. The dura was scraped. The patient died very promptly, and autopsy revealed meningeal myelitis with extensive cerebral and cardiac lesions.

I have only briefly touched upon some of the most important ideas recently advanced, it being impossible in a short paper to do anything like justice to so broad a subject. Then, too, I have tried to consume as little time as possible in order to give way to the gentlemen who are following me and have kindly consented to prepare papers in this section.

THE PREVENTION AND CURE OF PERINEAL LACERATIONS.

By W. E. Fitch, M.D., Durham, N. C.

PREVENTION.

The very great variety of opinion as to the best mode of preventing perineal lacerations sets forth the necessity for closer, careful study and fuller discussion of the subject. The methods of cure are the result of recent investigations and progress, chiefly in the domains of surgery and pathology.

I have nothing new to offer, only a short resume of the subject, which may elicit from this Society the experience of valuable opinion.

One of the most delicate, as well as the most responsible, duties which devolve upon the accoucheur is the regulation of the exit of the child's head and the careful management of the mother's perineum.

The history of perineal lacerations proves that they occur in the experience of every practitioner of obstetrics, however skillful he may be, and the physician who tells you he never had a laceration to occur in his practice is guilty of a patent dishonesty. Such statements place the honest physician in a false light with his clientele. If such ruptures are not found after delivery in the experience of certain doctors, it is because they are not looked for. Perineal lacerations have occurred at the hands of the very best obstetricians. But it is an undisputed fact that they occur most frequently in the hands of the unskilled, and that a large percentage of such cases are avoidable, and that many others, by prompt and well directed assistance, may be limited in their extent. Professor Parvin says ruptures occur in from 20 to 30 p. c. of primaparæ and in from 5 to 10 p. c. of multiparæ. Schroder found that lacerations occurred in 38 p. c. of all cases delivered in the dorsal decubitus and 25 p. c. in all other positions.

There is no doubt but that with care and skill the frequency of these lacerations may be reduced from 5 to 10 p. c. Therefore it would seem to be the duty of every obstetrician to pay particular attention to this subject and pay closer attention to the means of preventing these lacerations, especially those occurring in primaparæ in whom they are most common and their result most disastrous. There is no escape from the responsibility of a large percentage of the ill results in these cases. It will not suffice to throw the onus on the physician of limited experience. He is not entrusted with a large percentage of labor cases.

We all know how hard it is for any obstrician, and more especially the novice in this art, to do the best thing, at the best time and in the best way. When the head is down on the perineum, especially when it is a primapara and a large head to pass the maternal parts, the patient and her friends in phrensied

excitement, at this critical juncture the young physician has some advantages to offer against his lack of experience—he is fresh from college, where he has had advantages of consulting the best authorities, and if he has not acquired confidence he is painfully aware of the dangers before him. To the older members of our fraternity we must look for accountability.

I fear that there are some, but I hope not many, who hug the delusion that these occurrences are wholly unavoidable, that but little mischief occurs from them when they do happen, or even that the perineum takes care of itself. As far back as the days of Avicermo, nine hundred years ago, was taught the dangers of not caring for the perineum. There is yet a wide divergence of opinion as to what is meant by "supporting the perineum." Galabin says it was formerly taught to press with the palm of the hand upon the perineum, when stretched over the advancing head, and so check that advance. But such pressure on the perineum will actually tend to increase the uterine action, and when pains are violent may actually bring about the action you so much desire to avoid. In other cases the prolonged pressure has caused quite an unnecessary delay in the labor.

The opponents of "perineal support" embrace many obstetricians of eminence, among them—Lieshman, Hewitt, Playfair and others—who propose to substitute the term "relaxation of the perineum" for "perineal support." Goodell suggests that two fingers of the left hand be inserted into the rectum, with the thumb of the same hand pressing against the advancing head, and with the fingers hook up and pull forward the perineum over the advancing head toward the pubis. He claims that by drawing the perineum forward he relieves the strain on the thinned border and promotes elasticity of the tissues. Prof. Lusk says that in cases of rigidity he alternately draws the chin downward through the rectum and allows it to recede. He has seen the most obstinate resistance overcome by the to-and-fro movement, and the soft parts become softer, yielding and distensible. Dupaul places two fingers of the left hand over that portion of the child's head which corresponds with the anterior commissure of the vulva and the two fingers of the right hand on that portion which corresponds with the posterior commissure, and thus counterbalances the uterine contractions, giving the vulva time to gradually dilate; the head is gently directed upwards against the pubis, which aids deflexion, and in this way the strain on the posterior commissure is relieved. Dr. Reamy has his patient lie across the bed with her hips close to the edge, her legs flexed on her thighs and thighs on abdomen, a strip of strong jeans cloth is so applied that its upper margin comes on a level with the fourchette; traction is now made by assistants at either end, as the accoucheur may direct, causing pressure on the perineum. Prof. Engleman advocates the semi-recumbent position as the best in ordinary cases, and thinks there is a certain amount of support gained in this position.

I might add many other substitutes for the plan of supporting the perineum, by men eminent in the profession, but I will spare you that infliction.

The great diversity of opinion and the want of statistical proof by the upholders of "perineal relaxation," on the one hand and the great weight of acknowledged authority, together with my personal experience in a Maternite Hospital when a student, and my private practice on the other, cause me to cling to "perineal support"

Nægele, Matthews, Duncan and others think that relaxation gives no better results than other methods. Dr. Thos. Opir says "perineal support" is not likely to be abandoned, nor does he think it will be replaced by hip bandages or rectal expression.

The following is the plan I usually pursue in nearly every case of labor I attend: At the close of the *second* stage of labor I begin to "support the perineum." When the labia are gaping and the head commences to engage in the dilating ring of the soft parts, the support is given while the pain is on, and remitted during the intervals, so that the circulation may be restored. The patient is put in the dorsal position. Sitting at her right side and facing her, my right hand is applied over the perineum, making for it a second supporting layer, the thumb and index-finger and the intervening web encircle the head, supporting the substratum and widening the extension of the occiput.

By a well directed pressure upward and forward it is claimed that the perineum can be pressed forward and the strain on the thin margin in a measure relieved. I do not think this of practical value. If the powers of the uterus are unduly strong and propulsion so rapid as to threaten a laceration, I use my left hand over the right thigh of the patient in co-operation with the right hand, to retard the rapid progress of the head. If delay is imperative, I place the ends of all the fingers of my left hand, arranged in a cone, on the occiput and restrain it. Without changing the position of the body the right hand may be reversed, the fingers used as the support, the thumb acting with the left hand to check the rapid advance of the head.

The primary cause of most lacerations is not so much the undilatibility of the perineum as the excessive uterine propulsion. Chloroform, however, is the remedy par excellence to regulate the too rapid dilatation of the soft parts, but it must be pushed to relaxation, or it will have a contrary effect to what is expected. Every one who has used it much in labor must have noticed that the uterine contractions are increased in severity and efficiency under partial anesthesia, so as to get the good results you so much wish for, it must be pushed to complete relaxation of the soft parts. It is always best in forceps operation, especially in primaparæ, to withdraw the foreceps when the head is on the perineum, and leave the natural powers to finish the delivery. If, however, th

pains threaten to expel the child too precipitately, I hinder the passage with my forceps still in position.

All physicians who favor anal gymnastics to relax the perineum would find great solace in the substitution of chloroform. I never use a napkin in making "perineal support." The relationship of my hand to the underlying perineum is such that I can recognize at the moment it begins even the smallest tear. I do not use force of an aggressive nature to check the advancing head, which force might, by reflex action, spur up the uterus to greater activity and cause the labor to be hurried up. The arched surface of the palm of my hand fits so nicely over the convex surface of the child's head, and the diverging thumb and finger are faultless and wonderfully adapted to their position and use in perineal support.

Sitting facing my patient, who is on her back, I can detect and control her straining, I can exhort, assure and encourage her best, and, should chloroform be used, this is by far the best position. As soon as the head begins to pass out, the skillful accoucheur, who has been in watchful expectancy, uses his hands with accuracy and expedition to guide the advancing head upwards and forwards along the line of the axis of the obstetric canal. Support must not yet cease; it must still be persistently kept up, else the shoulders, after antero-posterior rotation will, by abrupt impingement against the fourchette, cause the dreaded laceration. The head must be carried well up against the mons, while the posterior or both shoulders are escaping.

I repeat that, whether the French position (on the back) oa the English position (on the left side) be adopted, there is the same necessity for painstaking, rational support of the perineum. When the expulsive stage is well advanced and the head is at the crowning, should my patient desire to be turned on her side, I always allow it.

Episiotomy has been advised when laceration seemed inevitable. The incisions usually are made laterly about ½ an inch from the median line. They are by no means certain as a prevention. Sometimes in making them you cut the duct of the vulvo-vaginal canal, which will result in a fistula. Every obstetrician knows how almost impossible it seems, in a goodly number of cases, for the perineum to stand the agonizing strain and stretching and at last get off safely. The operation of episiotomy certainly gives the mother a chance for a wound when one might not occur, especially if chloroform be used. It therefore puts the patient under additional risks of septic infection.

Before leaving the question of preventing lacerations, allow me to say that, in my judgment, forceps operation are a more prolific cause of these troubles than is generally acknowledged. Many severe lacerations of the cervix uteri demanding trachelorrhaphy and lacerations of the perineum calling for perineorrhaphy are found to follow the use of forceps, especially in primaparæ.

I am anxiously waiting for the more complete statistics on the subject of episiotomy, the decubitas of the parturient woman and the use of obstetric forceps as bearing on "perineal lacerations."

CURE.

There are but few men in our profession to-day who, after reading the recent works on gynæcology and obstetrics, could determine that perineorrhaphy was an unjustifiable operation. The gynæcologist, however, is a witness to great neglect in the non-performance of primary perineorrhaphy and to the numerous and grave ills to woman, which are the consequence. Some authorities speak of placing the woman on her side and binding her knees together as a cure for slight lacerations.

Dr. Carpinter says it is best to postpone the operation until after the period of involution, thinking that it materially interferes with the recovery.

Wounds of the genitalia following confinement differ from other wounds. In the former there is a constant drain of decomposing lochia from the involuting uterus, to say nothing of the weakened condition of the woman. It is a fact undisputed that septic absorption is chiefly through the lymphatics. The vaginal mucous membrane has but little absorptive power, but when deeper tissues are exposed, as in deep lacerations, the lymphatics are open from within (the autogenic form of sepsis), but to impressions from without, from a germ-laden atmosphere (the heterogenic form). It is the second duty of every physician, as soon as the secundines are delivered, to carefully examine the perineum by placing the index-finger in the rectum and the thumb in the vagina, then you can readily feel any laceration that has occurred, to know whether it is deep or superficial, straight and clean, or angular and shreddy—whether it is complete or partial. If your sense of touch indicates the slightest tear, a thorough visual examination should be made at once. Draw the labia wide open, and, after clearing away all blood-clots and locia, determine the direction and extent of the laceration. Fit the lips closely together and see how many sutures and what kind it will take to repair the injury; for partial lacerations, or even to the sphincter, two, or at most three needles, armed with No. 10 silver wire, will suffice—two or three more will be required for complete lacerations. I have used, satisfactorily, when the tear was half way through the perineal body, *one* suture, introduced at the upper part of the vaginal fissure, making it pass *deeply* around the tissues, going beneath all fissures and closing the tear completely against all drain from the involuting uterus, which, if not closed, would pass over it.

I will not take up the valuable time of this Society in describing the different methods of operation for all the recent works on gynæcology will be found satisfactory for this purpose.

We will now look to the pathological results of these injuries. Most medical ovservers have witnessed deep splits in the perineal body without operation,

and yet no inconvenience has occurred. This, however, is not the rule, and the cases neglected may later on seek the gynæcologist's aid. While the victim is in vigorous health and has a pelvis well cushioned with cellular tissue, the uterus and vagina with remaining organs may still remain in (situ) normal position But when these begin to fail and the whole system runs down (a physical wreck), and almost invariably where there is much standing, walking or other physical effort, displacements and disability ensue.

Dr. Gillard Thomas ennmerates the following formidable list of ailments, any one or sometimes groups of which are consequent upon the injury: Septicæmia, anterior and posterior uterine displacements and hyperplasia, uterine engorgement, cystocele, rectocele, chronic cystitis, subinvolution of uterus and vagina, destruction of the uterine ligaments, the development of a tendency to abortion, neuralgia affecting the site of the rupture with impairment of the sexual enjoyment in the male.

In August, last year, it was my ill-luck to witness a distressing illustration of neglect. The patient had been delivered in January and had a laceration extending through the perineal body. Her physician, after waiting till the third day, attempted to do the primary operation, but of course without success; he then told his patient she could not be cured here, and that there was not a surgeon in the county who could do the operation, and advised her husband to take her to a hospital, which he could not afford to do. She was in this state when I was called to see her, suffering with neuralgic pains at site of laceration, lying across the bed, with legs flexed on thighs and thighs on abdomen. It was a pitiable sight to behold—there, before me, lay this poor woman, suffering the most intense, agonizing neuralgic pains. She gave the history of being delivered some months before of a large male child, and that her physician on leaving assured her that she was *all right*; but two days later, when passing a catheter, realized that he had overlooked the laceration, and attempted the primary operation, but without success. She recovered slowly from the puerperal period and realized pain and pressure about her genitals—complained that it felt like her bottom had given way, which was increased on walking or standing—when her strength was overtaxed she suffered with headache, profuse leucorrhœa and pelvic tenesmus-neuralgia; she was constantly constipated, but otherwise well, unless she took too much exercise and brought on an attack of neuralgic tenesmus. I advised an operation, which was acceded to. I began to make preparations by building up her general health to the best possible condition. After this was done, and two days before the operation was to be performed, I gave a dose of pulv. glyc. co. The next morning her bowels moved spontaneously, and an hour later an enema of borax and hot water was given, to wash out the rectum; she had a light liquid breakfast; a large vaginal douch (1 5000 bichloride) was then given, to thoroughly cleanse the parts. At 10:30 o'clock she was anæsthetized by my es-

teemed friend, Dr. Freeman, and I performed the operation of secondary perineorrhaphy; the bleeding was easily controlled when the sutures were placed. The site of operation was dusted with powdered iodoform, covered with marine lint and dressed antiseptically, dressings held in position by a **T** bandage. She was very comfortable, only feeling a slight burning sensation at wound. She took a glass of milk and slept for several hours during the night. The catheter was used for the first forty-eight hours; after this she was turned over on her face and urinated in a bed-pan placed under her; on the morning of the third day she took a Seidlitz powder and at noon an enema of castile soap and water, which moved her bowels freely and easily; her bowels moved daily after this with the aid of soap enemas; after the 5th day the dressings were changed daily. There was no discharge from wound or vagina, nor was there any vaginal injection used at any time. On the tenth day she was placed in Sim's position and the sutures removed without making any traction on the parts.

The patient was allowed to sit up in bed after the 12th day. On the 15th day she was allowed to sit in a chair; on the 16th day she was walking about the house.

The result was gratifying—she has been restored to full health and vigor. There can be no question that the duty of the second physician, into whose hands these cases fall, is to quiet, or at least try to suppress any existing resentment of the patient towards her former attendent, and to make due allowance for all prejudice and exaggeration.

The surgeon in such a case is well nigh powerless, and it is, as a rule, best to let the matter pass in silence.

These lacerations are sometimes unavoidable, and the accoucheur should be given the fullest possible protection and defence. In my judgment it is the duty of every physician, as soon as he recognizes a laceration, to make a frank, honest statement, shorn of all technicalities, to the patient and her friends, giving reasons why the immediate operation should not be postponed; this plan has invariably served me. The failure to perform primary perineorrhaphy is not chiefly because it is a difficult operation, or that the obstetrician has not sufficient surgical skill, but rather because he fears the discredit among the laity of being a blundering, unsuccessful practitioner. This apprehension will in the future, more than in the past, be offset by the damaging exposures made by such cases seeking the aid of the gynæcologist.

I feel fully warranted in saying that any physician perpetrates a great wrong on his patient in not observing any well established rule for their benefit which is life-saving and health-giving.

It will not avail to abuse the specialist. Those unsealed lips will in the future speak out against the practitioner of obstetrics who does not heed the warning.

I will beg leave of this Society to narrate a case of primary perineorrhaphy which occurred recently in my practice, presenting some interesting points:

February 9th I was called to see Mrs. M., 22 years old, a lady of slender physique, 5 feet 6 inches high, in the non-pregnant state weighed 118 pounds. The first stage of labor was stern and worrying. Her labor was well advanced when I arrived—nearing the second stage. On digital examination I diagnosed L.O.A. position. The delivery was effected under chloroform, given at first only during the pains and pushed to relaxation when the perineum was reached. After six hours of hard struggling in the second stage, the perineal body gave way and the third stage was soon completed. On examination, the laceration was found to extend through the perineal body and one and a half inches up the rectum As soon as I could deliver the placenta and secundines and get firm contractions of the uterus, even before the effects of the chloroform had died away, I commenced the operation of primary perineorrhaphy, previously clearing away all blood-clots. With a long 3 inch curved needle, as advised by Emmett, I made the needle sweep around the rent in the bowel, entering on the right side of the anus and emerging on the left; two more sutures were put in so as to cross the rent at proper intervals. The rent was satisfactorily closed, as indicated by the index-finger of the left-hand in the rectum, which is essential, both to the introduction of sutures and to realize the proper closure of the fissure in the rectum. Retaining the finger in the rectum, two additional sutures were introduced in the perineal portion of the laceration, which closed the tear completely. Over the wound I placed a piece of absorbent cotton, saturated in a 10-grain to j ℥ solution of chloral hydrate, as suggested by Goodell, over this some dry lint, held in position by a **T** bandage. The temperature never exceeded 100° F., and the pulse did not go beyond 80. The milk-flow was satisfactory. The child weighed 14½ pounds at birth—the largest I ever delivered. On the 8th day I removed the sutures, which, despite the strain, held their own beautifully.

The patient throughout was kept on a light nitrogenous diet, milk being excluded. Sixty days after delivery the perineal body was perfectly restored, the process of involution was thoroughly accomplished, and there was nothing to mar the completeness of the success.

SYPHILIS.

By J. E. Ashcroft, M.D., Monroe, N. C.

Syphilis is a chronic infectious and constitutional disease. Entering the system by means of the blood vessels and lymphatics, it attacks primarily the connective tissue, and may in its course affect every tissue and organ in the body. The disease is characterized by an increase of the connective tissue-cells, and by the development of a new tissue, which is composed of cells resembling white corpuscles. By some observers syphilis is thought to be caused by a micro-organism, but up to the present time no specific germ has been positively demonstrated in all syphilitic lesions, and therefore no uniform results or positive conclusions have been obtained. There are two forms of syphilis—the acquired form and the hereditary form; both are due to the same virus, but differ in their course, lesions and symptoms. Acquired syphilis is communicated by a syphilitic person to one free from the disease, the point of inoculation being always marked by the initial lesion. Hereditary syphilis is transmitted in utero from one or both parents and in this form there is no initial lesion.

As a rule syphilis occurs but once in the same individual, but reinfection may take place, as is shown by several well-authenticated cases of second attacks. The course of syphilis may be divided into three stages, the primary, the secondary and the tertiary; but it must not be forgotten that in a large number of cases tertiary lesions may occur in the secondary stage or *vice versa* or that lesions of these different stages may be present at the same time, thus showing that the disease does not invariably follow these sharply defined periods.

THE STAGE OF INOCULATION.

This period varies from twelve to forty days, but its usual duration is from three to five weeks. Its commencement dates from the entrance of the syphilitic virus, but during its continuance there is not the slightest symptom or visible lesion that can be recognized as pertaining to the disease about to be developed. If the contagion gains entrance through an abrasion this latter heals just the same as it would have done if there had been no inoculation; if the disease is conveyed with vaccination, the vaccine vesicle pursues its early course unmodified. At the end of the period of incubation we find arising at the point where the virus has entered a small indolent papule. This papule is called a chancre or the initial lesion of syphilis, and marks the commencement of the primary stage.

THE PRIMARY STAGE.

This papule may in its further course undergo several modifications. If situated upon the skin, as in artificial inoculation, it usually remains as a dry

papule over which the stratum corneum is seen tightly stretched; later this layer separates, and is perceived at the summit of the papule as a thin scale. If the tissues lying directly underneath the papule be delicately grasped between the thumb and index finger a certain amount of resistance is perceived. This resistance is due to the presence of a layer of hard infiltrated tissue constituting the so-called induration. The induration may be confined to a lamina not much thicker or stiffer than a piece of parchment, or it may approach the size of a split pea. It is this induration which constitutes the fundamental characteristic of the true or hard chancre as distinguished from the chancroid. After an uncertain period, varying from two weeks to two months, the chancre undergoes retrogressive changes, which consist in the subsidence of the papule and disappearance of the induration. When the chancre appears upon the mucous surfaces of the penis, it presents the characters of the dry papule above described. More frequently, however, erosion or ulceration occurs, owing to the more delicate character of the epithelium. When the lesion is situated on the glans penis we not uncommonly find an excessive degree of induration. When the chancre appears upon the female genitals, it rarely presents more than the slight parchment induration, and sometimes often this is absent or inappreciable.

In a very considerable number of cases in females, the chancre passes through its various stages, and disappears without having awakened the attention of the patient. Chancre is usually painless unless irritated, under these circumstances it may become inflamed and painful and be with difficulty distinguished from a chancroid.

Adenitis.—Within a week or ten days after the appearance of the chancre we usually find other symptoms arising, which are highly characteristic of syphilis. These are indolent and indurated tumefactions of certain lymphatic glands. When the chancre is located upon the genitals the inguinal glands are first affected. The increase in size may occur upon one side alone, but more frequently upon both. As a rule, several glands upon each side are involved. They may vary in size, and as a rule are painless; more rarely they become inflamed and suppurate after the manner of the chancroidal bubo. The enlargement and induration persist for months, and sometimes for years. In addition, certain ganglia at the back of the neck become affected in the same way, though they rarely attain the size of the glands in the groin.

Diagnosis of Chancre.—When a suspicious sore exhibits the characters peculiar to chancre, and especially marked induration, together with involvement of the inguinal and postcervical glands, the diagnosis is effectual without difficulty and absolutely. If, however, induration is absent, and ganglionic involvement has not yet occurred, or the sore is inflamed and suppurating, the diagnosis may be exceedingly difficult, or in fact, impossible.

SECONDARY STAGE.

After the primary stage has lasted from one to three months, additional phenomena arise and usher in the so-called secondary stage. The earlier manifestations of secondary or constitutional syphilis include generally febrile action, called syphilitic fever, flat, moist papules upon the mucous membranes and the integument surrounding the genital organs, called mucous patches and a general eruption or efflorescence upon the skin. These symptoms do not always follow each other in the same order, and one or more of them may be absent.

Syphilitic Fever.—This is simply a febrile attack more or less sharp, and accompanied with general aching, gastric disturbance, headache, etc. It usually lasts for a few days only, and then passes off, and may be quickly followed by the cutaneous eruption. There is nothing distinctive in the character of the fever that will enable it to be recognized as syphlitic, except its previous history or subsequent development The lesions mentioned, especially the early cutaneous eruption, may disappear spontanously, to be followed by fresh outbreaks of eruption, in which the lesions present a somewhat graver aspect. The cutaneous trouble may be papular or squamous, as a rule the eruption is extremely superficial, and when it disappears leaves a temporary strain, without scar. During this period also the hair may fall out, producing a more or less complete, but also temporary, alopecia. The eyes, too, may become involved, and variously situated pains may torment the unfortunate victim. After the occurrence of various secondary symptoms which have disappeared spontaneously, or have been removed by treatment, it is not uncommon to have a lull lasting a few months, even years. During this period we may have absolutely no symptoms or signs indicative of syphilis; or, perhaps, the occasional appearance of an isolated lesion, which may partake of the supercial character of the usual secondary lesions, or on the other hand, may be but a foretaste of graver trouble yet to come.

TERTIARY STAGE.

If the disease has not been definitely and permanently arrested in its development during the preceding stages, it may pass on to the condition known as tertiary syphilis. During this period we encounter profound modifications, not only of the superficial, but also of the deeper tissues and organs. The mucous membrane may become involved in extensive and destructive ulceration. The integument becomes the seat of tubercles, pustules and ulcers, the periosteal membranes inflame, and the bones are affected with caries or necrosis. The vital organs also may become involved in the syphilitic processes, not only the lungs, liver, intestinal tract and kidneys, but the nerves, spinal cord and brain may be invaded, with ultimately a fatal issue. In the tertiary stage the patient may suffer greatly from debility, and the establishment of a general cachectic condition. We see then from this general review that syphilis is a disease

capable of affecting the entire organism, and often in a disastrous manner; we see that few if any of the tissues or organs are exempt from its ravages, and we are forced to the conclusion that it is a disease which invites our earnest attention and most careful consideration.

PROGNOSIS.

The general prognosis in syphilis is good, both as regards the removal of existing lesions and the ultimate comfort of the patient, in cases that are seen early in the course of the disease, and are subjected to judicious treatment. On the other hand, cases that have been neglected or badly treated in the beginning are more difficult to manage, and more apt to present frequent relapses. Besides these are a number of other circumstances that modify the course, and consequently the prognosis. Among them may be mentioned the general health of the patient, his habits as regards temperance in eating and drinking, and his ability to procure proper and sufficient nourishment, medical attendance, etc. His occupation, if one necessitating much exposure, may likewise influence the result. In addition it must be remembered that some cases are natuaally light, and that others on the contrary are particularly severe. These various elements therefore must be borne in mind whenever we consider the prognosis of syphilis, with respect to a particular case or as regards the disease in general. The various lesions, too, have each their separate and individual prognosis. The chancre is rarely more than a temporary inconvenience, occasionally, however, it becomes complicated with phagedenic action; and more or less sloughing may seriously impair the beauty and symmetry of the affected organs, ulceration about the soft and hard palates may permanently impair the voice and be accompanied with even more serious inconvenience. Necrosis of the bone may confine the patient to bed, and interfere for a greater or less time with his usual occupations. Affections of the eye, if not promptly treated, may seriously impair vision, and disease of the nervous centers may produce permanent disability or speedy death.

TREATMENT.

Treatment of syphilis must be considered under three heads: First, the hygienic, second, the specific, and third, the local.

Hygienic Treatment.—The very first points to which the physician should devote his consideration are the condition of the patients general health, his habits, and his surrounding. If his health is good, his habits correct, and his circumstances comfortable, it is only necessary that these conditions be preserved. If, however, he is suffering from some previous disease, this should be relieved or its effects obviated if possible. If he is intemperate reformation must be brought about before treatment can be successful. Good health, good food, good air, suitable clothing, freedom from undue exposure to the elements, regular exercise, and methodical habits constitute more than half of the treat-

ment, and combined with proper specific medication rob the disease of most of its terrors. On the contrary, the absence of these essential elements will greatly impair the effects of otherwise judicious treatment, and not unfrequently lead to relapses annoying alike to the physician and patient.

Specific Treatment —This embraces the use of mercury, the only known specific and directly curative agent yet discovered, and of the iodides of potassium and potash, and the chlorides of gold and platinum, for the relief of certain symptoms pertaining to the latter periods of the disease. The basis of syphilitic treatment may be expressed by a single word, and that word is *mercury*. That mercury when properly administered cures syphilis is beyond a question ; that it is the best known remedy for this purpose has been proven. The question, however, is frequently raised as to whether mercury, although curing the syphilis, may not produce effects nearly if not quite as bad as the original disease. This will depend entirely upon the manner in which it is administered. It has been shown that if properly given it may be continued almost indefinitely, with the result of curing the disease, and without in any way injuring the health or constitution of the patient. On the other hand, it may be given in such a way as to produce the most disastrous consequences.

Mercury, then, is to enter into the treatment. By many it is given sparingly and with hesitation, and is soon abandoned for the iodide of potassium The majority of practitioners, however, rely pretty fully on mercury in the early seconday stage, combine it with the iodide of potassium under the name of mixed treatment later on, and trust to the iodide alone in the management of tertiary lesions. In our own practice we have used mercury in all stages and are happy to say our patients were entirely cured. Never employ the iodide if it can be avoided. An interesting and at the same time important question arises at this point: How does mercury cure syphilis ? Is it by some alteration of the constitution of the blood, and the consequent reduction of nutritional changes, or is it by direct location of the drug upon the lesion itself ?

Mercury cures the lesions by its particles being brought directly in contact with them, and the larger the quantity of mercury that can be made thus to act the sooner the cure, provided the remedy be used in such a way as not to exhibit its own peculiar poisonous effects. Mercury, like every other specific remedy, as soon as it poisons, ceases to cure, and becomes in addition a very ready and potent agent of mischief. By these two principles the treatment is to be guided. We have given as much as three grains of the protoiodide of mercury daily for months without any bad effects on patient. In some cases it will be found that the protoiodide given as above will produce symptoms of gastro-intestinal irritation. Under these circumstances the dose must be diminished, or the drug combined with a sedative. The degree of tolerance of mercury varies with different patients, and it is frequently necessary to vary the

doses for a few weeks, increasing or diminishing the quantity until the appropriate dose is ascertained When it is determined it should be continued without interruption, if possible, for at least eighteen months. At the end of this time if the patient has had no syphilitic symptoms other than those for which he first came under treatment, or if he has been for a considerable time without specific manifestations, all medication may be abandoned, in the hope that the disease has been completely eradicated. The continued use of mercury as here recommended is possible and practicable in a certain number of cases. In others, however, it cannot be strictly carried out. The causes of failure are usually due either to negligence on the part of the patient or the doses were two large in the beginning. A great many patients, especially those of the lower classes, abandon all treatment as soon as the manifestations for which they sought relief have disappeared. The most inevitable result is, sooner or later, relief by temporary treatment is followed by another relapse, until actual symptoms of the tertiary period appear in such a form as to demand the use of iodide of potassium or other agents for their relief. On the other hand, if mercury is pushed too freely at the start mercurial symptoms about the mouth and even decided salivation may suddenly develop. This state of affairs is to be deplored, because in the first place it necessitates interruption of the treatment, and in the second place salivation is a positive evil, besides being a source of great annoyance to the patient. If salivation should occur, the mercury must be absolutely withdrawn. Although the protoiodide is the only preparation of mercury of which we have yet spoken, it must not be supposed that it is the only one that is of service in early syphilis; on the contrary, it may be replaced by calomel, or protoxide of mercury, or by the metal itself in a state of minute subdivision, as found in blue pills and in triturations with chalk or sugar of milk The foregoing applies simply to cases of syphilis that comes under treatment in its early stages.

In many instances, however, we will be consulted at a later period, and for lesions of a more serious character. This will often compel us to modify the treatment, and to introduce an additional therapeutic agent, namely, the iodide of potassium. This drug is extensively employed in syphilis, more frequently, we think, than it should be. Its popularity is due principally to the fact that it exerts a very prompt control over certain manifestations of the disease, and to the idea possessed by many that its effects upon the system are less injurious than those of mercury. This opinion we cannot altogether share. The iodide, however, has its special functions to perform and under certain circumstances is indispensable; but before employing it we must understand exactly what it is capable of effecting. Mercury cures the disease, by so doing removes the cause that produces the various symptoms. The iodide, on the other hand relieves certain symptoms with rapidity, but does not eradicate their cause. In other words, relapses are far more frequent after its use than after the judicious

employment of mercury. The conditions to which it is appropriate are affections of the periosteum and bones, extensive ulcerations and affections of the nervous system. In cases accompanied with severe periosteal pains, the aid of the iodide may be invoked for the relief of this symptom, a relief which, if given in sufficient doses, it usually affords. In cases of extensive ulceration, or other processes involving the integrity of important organs, and where there is not time to wait for the more tardy action of the mercury, or when this latter is contra-indicated by the patient's general physical condition, the iodide should be used promptly and freely. From the above it will be seen that mercury and iodide of potassium both have important roles to fill in the management of syphilis. Their properties and powers, however, are not identical, as many seem to think, and consequently they are not interchangeable. They cannot be given one for the other, in the hope of attaining the same end; but each must be used according the special indications of the case, the iodide to relieve symptoms and lesions in the later periods of the disease, mercury to cure the disease itself in all its stages. The foregoing are the principle agents to be employed in the specific treatment of syphilis, but a few words are necessary in regard to their administration.

As a rule, mercury is given by the mouth; when, however, the stomach or bowels are particularly irritable, the drug may be used hypodermically, or by fumigation, or by inunction. An eminent German specialist says syphilis does as well without treatment as with it, but so far as our experience goes we cannot agree with him.

DISCUSSION.

Dr. Powers asked if it were not true in syphilis, as in all other diseases, that there is a natural tendency toward recovery. He believed that the previous remarks extended toward the exceptions rather than the rule. A large majority of the cases are never treated, or only half way treated. It is generally held that it requires about two years of treatment to eradicate the disease from the system.

Dr. Sykes thought that syphilis was a trouble that grows larger rather than smaller.

Dr. Stancell asked if it was the experience of the members that it yielded more readily to treatment in negroes than whites.

Dr. Booth said that syphilis gets worse and worse, and as to its having a special tendency to get well, that you might think that a man was cured and in a few months he would be back with the same trouble but worse.

Dr. Way reminded the Society that Dr Stancell had put a question to the Society in regard to the comparative results of treatment of the white and colored races. The effect of race on disease is a point of interest to physicians in this State, and one which they must settle. He regarded the successful treatment of syphilis in the negro race as more difficult than the white race.

Dr. Schenck stated that some years ago, while prison surgeon for the State, a great many cases of syphilis came under his notice both in whites and in negroes. He had found it as easy to cure it in the negro as in the white prisoner, for in prison every man was forced to do as told. He had found it easier to cure it in white people in private practice, for as a rule, a white man is more intelligent than the negro man. He gave this as the result of close study for four or five years.

Dr. Ashcroft said that if treatment was persisted in the patient would recover. He had had no trouble in getting his patients to follow the treatment prescribed. He thought that the fact that the negro recovers more slowly from a disease is due to his unhygienic surroundings—his clothing and the exposure he is subjected to.

ANTISEPTIC SURGICAL DRESSING.

By D. A. Stanton, M. D.

"Nothing is lasting, except change; nothing is permanent, except mutation; nothing is settled, except the past."

In these words does a writer characterize politics; the same antitheses are applicable to medicine and surgery, for in these sciences the beliefs of individuals are constantly changing, as well as the opinions of physicians, in regard to the most important questions.

This change in belief occasionally occurs without attracting the special attention of some men, and they think they stand on the same foundation, without noting the fact of its alteration, sometimes to the advantage, and again, sometimes to the disadvantage of the truth.

Many are the changes that have been wrought during the past fifty years in the management of wounds, and these changes are still going on; and what we are practicing to-day, in the line of antiseptic surgery, will perhaps, fifty years from now, be as nearly relegated to the past as the practice of applying soot and brown sugar to a fresh wound, by our forefathers, is to-day.

When I accepted the position as assistant on the section of Anatomy and Surgery, the next question was—on what subject pertaining to the section can I most interest the convention? In choosing the one announced, I take it for granted that every one present knows as much about antiseptic surgical dressings as I do myself, therefore I shall not attempt to teach you, but call your attention to what you already know, and if, per chance, I stimulate you to a more vigorous application of that knowledge, I shall have accomplished enough to compensate me for the time spent in preparing this paper.

To more fully appreciate the principles of antiseptics, we must first see in what antiseptic surgery, or "antiseptic surgical dressings," consists.

Sepsis is the opposite of asepsis; an aseptic wound is a healthy wound and only needs clean dressings; hence, antiseptic dressings are those used to unhealthy, or septic, wounds, to bring them back to a healthy state. The next problem that naturally suggests itself is, what produces this unhealthy condition of a solution of continuity in the human flesh? for in the natural world change without cause is not to be thought of.

You will pardon me for presuming upon the intelligence of this scientific body by going somewhat into the theory of bacteriology, as the subject of this paper is so pertinent to it that to be properly understood some reference is necessary. Bacteria, micro-organisms, microbes and germs are synonyms for certain minute, microscopical, vegetable organisms, which, when introduced into the living body, produce the fever and tissue change familiar

to all who have treated a suppurating wound. From the earliest times it was assumed that an irritation was at the bottom of the changes to be observed in inflammations.

Mechanical, thermic and chemical irritations were said to affect the tissues and organs, altering the customary processes in them, and causing an inflammation. When the irritant affected the organism or spread throughout it then occurred fever.

It was claimed, then, that mechanical injuries, burns or refrigeration (thermic irritation) cauterization with strong acids, alkalies or mineral substances (chemical irritation) might cause inflammation and suppuration, and often (enough) fever.

In the present century, it was supposed that, in addition to mechanical, thermic and chemical irritants, there were others to which may be applied the term organic, and these alone might cause inflammation, suppuration and fever.

Otter Weber and Theodore Billroth are to be named as early observers in this direction. They came to the conclusion from their experiments that the above phenomena would result from the entrance into the animal experimented upon of very small amounts of organic substances. They claimed that in blood, in pus, in tissue, by disintegration and chemical process, organic substances were formed, which, when introduced into the blood in small amounts, would cause inflammation and fever.

Pasteur's observations first resulted in facts of value, especially from a surgical standpoint. He first claimed that the process of fermentation, of suppuration and of decomposition, as also the occurrence of contagious disease, was due to the presence of an organized, living cause, which he termed Contagium Animatum. He proved also that the above processes might be forestalled by preventing the access of the microbe.

Pasteur, however, was not the only observer who taught the presence of a Contagium Animatum. We may trace this view back to the year 1700. Then the question was discussed under the term Spontaneous Generations, although this assumption is not related to Contagium Animatum, for, if we grant that a coccus or bacteria may develop de novo and need not be brought from outside into the body of an animal, then does the ground work of bacteriology fall to the ground. The great discoveries of Pasteur first convinced the world of the presence of a Contagium Animatum. His methods of observation and experiment are to-day above criticism on account of their precision, exactness and clearly established premises. The fortunate application of his theoretical conclusions to practical and material questions of to-day enable him to suggest prophylactic means against, and to cure the effects of certain animal parasitic disease.

Further, physicians, pathologists, physiologists and hygienists have studied and experimented in a scientific direction, in order to apply these theoretical considerations for the benefit of mankind. The result is that the literation of this subject has become enormous. Yet more, bacteriology has become the basis of the medical science.

Pasteur's observations were applied to surgery by Joseph Lister, who noticed the favorable progress of subcutaneous wounds as compared to the unfavorable condition of open wounds. He claimed that this difference was due to the micro-organism from the air, which reaching the secretion of open wounds, there developed and increased, and caused suppuration and infection; while in case of subcutaneous wounds, the epidermis prevented the entrance of micro-organisms and protected extravasation and the exudation of the wound, still from infection.

Lister, first in 1867, seeing that he could not prevent the access of micro-organisms to open wounds, began by killing them, or rendering them incapable of development by means of carbolic acid. In the *Lancet* for July 27th, 1867, Lister called attention to a new method of treatment of hernias opened in the presence of atmospheric air. In September of the same year, in the same journal, we find an article by him on the "Antiseptic Principle in the Practice of Surgery." The spring of 1867, therefore, is the date of the beginning of the antiseptic era, since he first in this article used the word antiseptic in its present sense, a name which has been pregnant of such good influence and result.

Lister was assiduous in his efforts to perfect his method of wound treatment, based on the view of contagium vivum, and in 1870 he presented his Antiseptic Dressing, which I need not describe, since it is no longer in use. But Lister's views in regard to the essential elements of wound-treatment are still accepted, and these are that the decomposition in a wound, and affection of wounds due to decomposition, are intimately connected with micro-organisms coming from without.

The wound treatment and dressing should prevent the access of micro-organisms; but when these have entered, notwithstanding every care, they should kill them, or render inert their action.

The dressings and substances used for killing the germs should not irritate the wound at all, or at least very little. The bactericide substances are called antiseptics, and there are a large number of them to-day, and new ones are being daily proposed. Under such circumstances then, there are, of course, a large number of Antiseptic Dressings.

Before, however, a *general* wound dressing was discovered, another observer was needed, who, by the acuteness of his observations and the finding of new and exact experimental methods, was able to clear the bacteriologic road. This man was Robert Koch, who by the methods of *pure culture*, as

well as by the logic of his experiments and conclusions, solved the problem, and gained adherents to his views. He has *further* determined the ability of the various antiseptic agents to kill the bacteria, and to prevent their development, and thus stated their medical and surgical value. Koch has added nearly as much as Lister or Pasteur to the progress of Antiseptic Surgery. Now that we know that cocci bacteria and *bacilla* and *spirilla* are present in the air, earth and water around us, and now that from numerous observations we know that harmful micro-organism are absent from the fluids and tissues of healthy animal and human bodies, as well as from fluids and tissues of sound plants, we are driven, hence, to the conclusion, that the epidermis, the tissues and the fluids of animals and plants protect against micro organisms; and that, on the other hand, in case of wounds and surgical operations, where the protecting epidermis has been injured, or where, through disease, the epidermis has lost its impermeability then is the entrance of many germs possible, and these cause inflammation, suppuration and various wound diseases.

To enter into a detailed presentation of all the organisms that lead a parasitic existence in the living human body would occupy too much of the time of this convention; but from the observations of Ogsden, Rosenbach, Cane and others, it is known that every kind of pus contains a micro organism, which Ogston, owing to its racimose shape, has called staphylococcus.

This coccus has the peculiarity, when cultivated on gelatine plates, of developing a beautiful orange-yellow pigment, and when man is inoculated with it causes suppuration.

He gave the name *staphylococcus pyogenes aureus* to this coccus on account of the above peculiarity. This coccus is widely disseminated through the atmosphere, and is singularly resistant to reagents; it may be dried, baked, treated to chemical reagents and yet be neither killed nor deprived of its properties. It is hence conceivable why, after wounds, inflammation and suppuration frequently set in, and why the *staphylococcus pyogenes aureus* is found as the casual factor of the pus.

The micro-organism, however, is not the only one found in pus. Rosenbach has discovered, as well, a *staphylococcus pyogenes albus*, and Passet, a *staphylococccus pyogenes citreus.*

As to whether these three cocci, which are different the one from the other, only by the fact that they develop pigments, are the same or different species we cannot with certainty state.

The white and the citron yellow are, however, much less frequently found than the golden. Even the golden works in different ways; it only causes pus when inoculated in man; animals cannot be inoculated. In animals the *staphylococcus pyogenes aureus* must be placed under the skin or in a serous cavity in order to cause pus. In case it is directly injected into the blood it causes the characteristic, dangerous form of endocarditis ulcerosa.

When, however, the staphylococcus aureus is injected into the blood of an animal which has broken, or injured its leg, then it causes an osteomyelitis. If this micro parasite furthermore is injected into lymph channels, then it causes metastatic abscesses in the liver and kidneys and also suppuration in the joints.

Likely enough these metastatic abscesses, the osteomyelitis and the ulcerative endocarditis, would be caused in man by the staphylococcus pyogenes aureus, even as they are in animals.

In addition to the staphylococcus pyogenes, there is another micro-parasite, which causes suppuration, although it is rarely met with. It is a coccus made up of small rings linked together in a chain, and is called streptococcus pyogenes and is readily differentiated from the staphylococcus pyogenes.

It is, therefore, quite evident that there exists a number of micro-parasites which are in a position, under favorable circumstances, to cause inflammation and suppuration. We witness almost daily the fact that one and the same effect may be the outcome of different causes. It is less evident why the same coccus should now cause suppuration, and next, pus metastasis, or osteomyelitis, or ulcerative endocarditis.

Now since it is shown that inflammation, suppuration and different wound diseases are caused by micro-organisms, it follows as a consequence that the therapeutic aim must be to kill these microbes. This essential, however, is a difficult one to satisfy.

When the microbes have once entered the body and have taken their abode then we have no certain means of dislodging or killing them without, at the same time, injuring this body. In the body we can only prevent, or limit, their development and weaken their action.

Since these microbes exist everywhere in the air, on our hands, clothing, instruments, bandages, etc., our treatment and dressings must aim at not allowing the germs to enter the body. It is necessary to operate, to dress, and change the dressings under careful antiseptic precautions.

To-day, in all hospitals and private sanitariums, operations are done in an ideal manner, and the mortality in grave operations has been reduced astonishingly by reason of antisepsis, which is easily carried out in these institutions. In country practice and small towns where these equipments are not accessible much can be accomplished by properly preparing the patient and giving some attention to the surroundings. But most is accomplished by giving special attention to antiseptics about the field of operation and all connected therewith.

Brief reference to one case will demonstrate the value of antiseptics in a grave operation, done under adverse circumstances.

On December 26th, 1893, I asked Prof. J. W. Long, of Richmond, Va., to see a case with me that Dr. J. J. Cox and myself had diagnosed fibroid turmor of the uterus, and if found correct to perform abdominal hysterectomy. Prof.

Long not only confirmed our diagnosis, but pronounced a three months pregnacy present also, which complication increased the necessity for immediate operation.

The patient lived in an old house, the floor and walls of which showed plainly that water and brush had not touched them for years. Not having time to secure better quarters for the operation, our attention was directed exclusively to the patient and everything that was used in the operation. The assistants were all required to render their hands aseptic by the usual methods. The patients abdomen was washed and shaved by Dr. Cox, who gave the chloroform, and afterwards kept covered, except a small space, large enough for the incision, with towels rung out of a bichl. sol. The table on which the patient was laid was a plain operating table, upholstered with oil-cloth; this was also scrubbed with bichl. sol. The operation lasted one hour The womb, ovaries, tubes and tumor being removed intact. The patient was dressed in a clean gown and put to bed. I saw her three times a day for several days, then once or twice a day, till she was well, and at no time did I find her with a temperature above normal, and after the first twenty-four hours there was no increase in the pulse.

On the tenth day every other stitch was removed, and on the fifteenth day the remaining ones were taken out. A good abdominal bandage was fitted, and the patient got up and was dismissed. There was no pus in the line of incision, nor stitch hole abscesses.

Other serious operations, under equally objectionable surroundings, could be cited, where the antiseptic precautions were taken, and the results were equally gratifying. But do not understand me as attaching no importance to the grand surroundings, which so many of our more highly favored brethren enjoy. The very best is not any too good. This digression is simply to show that by intelligent use of the means at our command we may master the situation and do capital operations with impunity to our patients without regard to the surroundings.

After the completion of any operation the wound should be irrigated for one or two minutes with a bichloride solution 1 to 1000 or 2000; this manipulation aims at killing or rendering inert any microbes in the wound.

The objection to carbolic acid as an irrigating fluid is that it liquifies blood clots and increases oozing from the surface of the wound, thereby depriving the wound of that rest so essential to primary union.

The aim of all surgeons in their dressings is the same, viz: to prevent suppuration; but if suppuration cannot be prevented, then decomposition and fermentation should be guarded against. The dressing, further, during union, should protect the wound against the entrance of microbes, and also against various other harmful influences.

These aims may be reached in a number of ways, all based on the same principles. But some one says, why don't I tell what embodies Antiseptic Surgical Dressings? Antiseptic Surgical Dressings is the application of any efficient means for getting rid of germs, and their application commences with the preparation of a patient for the operation, and lasts till the case is dismissed, dead or alive.

These dressings, however, are too numerous, far too many, especially for the satisfaction of young surgeons, for the reason that, if we thoroughly understand the use of a few, they may be made applicable to every case, and such knowledge is preferable to having an imperfect knowledge of many; besides, it relieves the mind of the tedium and strain incident to frequent changes. For when one habituates himself to the use of any particular thing its application becomes a mattar of course, and requires but little thought. Antisepsis may be mechanical, as by scrubbing, or washing; chemical, as by the use of carbolic acid, or bichl. merc., or thermic, by boiling water, or steam.

Bichl. merc. doubtless stands at the head of the list, of all germicidal agents, with a great many surgeons, and its use is not in the least to be depreciated; but the hands of an operator cannot be rendered sterile, or germ free, without succesfully immersing them in a saturated solution of permanganate of potash and oxalic acid.

It would far transcend the limits of this paper to mention the various articles and the manner of treating each one before and during an operation. Therefore it will suffice to say that in any operation, no matter whether the removal of an ingroing toe nail, an exsection of a bone, or a laparotomy, those agents which we know will render the instruments, field of operation, hands of operator, and assistants, and dressings, aseptic, should be scientifically made use of; and he who lays any claims to surgery and fails in the application of antiseptic dressings is guilty of unpardonable negligence to his patient.

PATHOLOGY.

By J. B. Powers, M.D., Wake Forest, N. C.

In undertaking to prepare a paper to be presented to the convention I have thought it no breach of propriety to depart from the custom of my predecessors and follow a different line of inquiry from the one usually chosen by them. In doing this, however, it has not been my purpose to seek what is new and sensational for immediate effect, but rather to find something enduring and to make a permanent impression.

The work of the microscopist, as well as the parallel labors of the chemist and pathologist, for the past quarter of a century, has excited the greatest interest among advanced thinkers everywhere, and developed a degree of expectancy among scientific men which is already spreading among the people at large. Nevertheless we are aware that no inconsiderable part of the medical profession has been slow to receive and endorse in good faith all the results obtained. Were it possible to determine the attitude of mind of a majority of the physicians of our State toward the achievements of the microscope in the realms of etiology and pathology, there is reason to believe that concerning them grave doubts would be found to exist. On this account the writer justifies himself in a modest endeavor to remove some degree of this unfounded skepticism and has chosen as his theme:

"FROM BACTERIA TO IMMUNITY."

A glance at such a subject discloses a vast distance between the beginning and close, and a great river flows between them as it were, but the genius of man has spanned it over with a bridge which is to grow in strength, safety and convenience as the years go by. Therefore, let us follow in the steps of its builders and examine the structure and frame. A knowledge of bacteria furnishes the first pillar upon which it rests. Then we are to inquire what are bacteria and what do they do? First of all they are not imaginary things. Every one who will examine under a miscroscope the contents of a bubbling fruit jar or wine vat may readily satisfy himself that bacteria are not myths but entities—real inhabitants of our world, and a little careful experimentation will further show that they have a place to fill and a work to do which is only accomplished by them.

It would be superfluous to go over the steps which prove their existence, but it will be sufficient to suggest a simple experiment. Let the incredulous place a little soup in a saucer and expose it to the air at a moderate temperature. In a few days the surface will present a variety of colors and a drop of the liquid placed under a lens of sufficient power will reveal the presence of a number of round dots, short rods, or corkscrew shaped bodies averaging

about 1-25,000 of an inch in diameter. Biologists have called the little organisms bacteria, and a little observation will show that they are full of life and endowed with all the essential characteristics of living things, capable of selecting and appropriating food, capable of growing and multiplying. Some even have organs of locomotion, and have been seen to move about with amazing activity either in search of food or possibly for aught we know for their own amusement.

In structure their substance is found to consist of a mass of protoplasm surrounded by a thin skin or limiting membrane, and consequently they are nothing more nor less than free and independent cells, bearing marked analogy to vegetable cells and animal cells, of which the tissues of vegetables and animals are built. They belong to the class of non-nucleated cells, but on account of its behavior the central portion is sometimes spoken of as a nucleus. Outside of the cell wall there is sometimes present a gelatinous material of greater or less consistency which separates the cells from each other and yet holds them together, as is seen in the case of frog eggs. These are known as diplococci when they occur in pairs; in chains as streptococci; in packets of four or more as sarcinci; in herds as zooglœa masses, &c.

God has placed these little creations upon the confines of existence, beyond the range of our natural vision, and at the point of convergence of the animal and plant kingdoms. They possess characteristics so much like animals and plants and yet they are so much unlike either that biologists have had difficulty to properly locate them. Finally, however, they have been placed in the vegetable kingdom, though they seem as a distinct world of invisible things. But it is to be borne in mind that their invisibility is not incompatible with definite size, shape and habits of life by which the different species may be distinguished. It is said that a billiard ball, a lead pencil and a corkscrew correctly represent the common forms. The billiard ball represents the rounded forms, called cocci-micrococci or macrococci, according to size. The lead pencil represents the rod-like forms known as bacilli, and the corkscrew represents the spiral forms, which are divided into three, geneva vibrid, spirillum, spirocharte. Ferdinand Cohn, Van Teighem and others give classifications to which the reader is referred.

They exist nearly everywhere in a profusion of mingled forms, and are exceedingly numerous. If we had eyes a thousand times more powerful than we have we should be able to distinguish many varieties, for millions upon millions of these little creatures infest all our surroundings, float in the air, swim in the water and occupy every inch of the ground upon which we stand, and throng even the depths of the sea. By actual experiment it has been found that every cubic centimeter of any specimen of water contains about 200 of them, and on standing under favorable conditions twenty-four hours the number will rise to 5,000, and in forty-eight hours to 20,000, and by the fourth day

become innumerable. Cohn estimated that a single bacterium would produce two of its kind in one hour, and each of them two more in the second hour, and in three days four thousand seven hundred and seventy-two billions would be produced, if conditions and food supply continued favorable. This would equal several tons in weight. Thus it is seen with what enormous rapidity they increase, and this multiplication continues the same for all varieties so long as conditions are favorable and food supply is sufficient.

The process of multiplication or reproduction is simple and is accomplished, with some exceptions, by division of the substance of the parent bacterium, and so on indefinitely, until food is exhausted or some intercurrent cause intercepts their development. Then a change takes place. In each cell, or bacterium, will be observed granular changes in the cell wall, and a bright point in the protoplasm which continues to increase in size till its diameter is or may be greater than the cell in which it arose. These have now passed into the spore state, and correspond to eggs, and can be transported by wind currents, water currents, insects and men to any distances. They withstand greater hardships than their parents, but remain inactive till lodged in another medium composed of proper nourishment attended by a suitable degree of moisture and temperature. Then the limiting membrane begins to swell and the transparent protoplasm grows cloudy and the mature cell appears again in the vegetative condition, and the process of multiplication goes on as before. In this way they keep up their existence. Nevertheless some bacteria have no spores, and therefore conditions must exist for them to continue in the vegetative condition. These are atrosporous and are less resistant than the endosporous forms. There are also ærobic and anærobic bacteria, but we cannot go into minute distinctions.

All bacteria can be compared to so many seeds ready to be sown into their several soils. Every single bacterium inherits and perpetuates the traits and possibilities of its ancestors, and every colony of bacteria proceeds from an individual of the same species. They do not spring from nothing, but in every instance originate from a parent either in the form of a spore or vegetative cell. These seeds are being sown every day through various agencies and everywhere harvest is true to seed. The principle is the same with these as with the higher and larger organisms. Corn yields corn, wheat yields wheat, and not something else. There is a connecting link between the appearance of bacteria of every kind and a parent of the same kind whether we are able to trace it or not.

These general remarks apply to all forms of bacteria alike as one vast family, but this family is divided and subdivided into numerous branches on account of the different habits as well as distinctions due to morphological differences. Some are distributed everywhere; others only in limited areas. Some are saphrophytes and live on dead organic matter; others are parasites

and exist on living animals and plants. Some find their supplies among inanimate substances without but are capable of developing within living organisms—facultative parasites, others live upon the higher organisms but can find materials for subsistence in the outside world—facultative saprophytes. Obligate parasites require existence upon living beings to complete their development. Some are friendly and helpful to us, others are warlike and deadly enemies. Some we eat, drink, breathe and handle every day with perfect impunity, others seek to eat and poison us with every opportunity. Some we employ as day laborers and their products flourish in the markets of the world and they charge as wages only their daily bread; others we dare not touch else we are liable to convey disease and death to our friends and ourselves.

Scientists have separated these mischievous and dangerous forms from the rest and distinguished them by the specific title—pathogenic bacteria. So that while it might be pleasant to visit the different fields in which our friends among the micro-organisms live and labor and familiarize ourselves with the extent and variety of their industries and products, it becomes us now to turn aside from them and endeavor to follow the trail of our enemies.

Pathogenic bacteria aspire to a higher life than their humble kinsmen and play a different role. They are not scavengers but parasites. They refuse to subsist alone on inanimate substances and dead matter but exist at the expense of the tissues of the higher organisms, causing degeneration, disease and death among them. The question is settled that diseases are produced by micro-organisms. Anthrax, known as malignant pustule in man and splenic fever in animals, yields indisputable testimonials. If a drop of blood be taken from an animal just dead of anthrax and carefully examined with a microscope, it will be found teeming with little short rod shaped bodies, bacilli. Now if the slightest quantity of this blood be introduced in the tissues of the second animal capable of taking the disease, this one also is taken sick as the first, and dies, and if the blood of the second victim be similarly examined, these same little rods are present in great numbers as before. The experiment may be repeated with like results, till the operator satisfies himself thoroughly that these little bodies are present in every case and that their multiplication takes place within the system of the animal he has inoculated and that in this way he can convey the disease from one animal to another indefinitely. Furthermore these bacilli may be placed in an artificial medium and grown outside of the bodies of animals. A very small amount of blood from one of the victims taken upon the point of a needle and introduced to broth will in a few days give rise to an abundant growth of anthrax bacilli. These may be taken from one medium to another for generations and multiplied to an indefinite extent, and animals inoculated with them develop anthrax as before. So that the chain of evidence is complete.

The same rigid experiments have been performed in the case of erysipelas

in man and the invariable conclusion drawn is that it is caused by a streptococcus. The same is true of consumption and its cause is found to be a bacillus, and of diphtheria, and its cause ascertained to be a streptococcus, and of lockjaw, and its cause determined to be a bacillus, club shaped in the spore stage, and of Asiatic cholera, and its cause proved to be a spirillum; and of dysentery, and its cause is an amœba; and of typhoid fever, and its cause is found to be a bacillus; and of chicken cholera, and its cause is found to be a bacillus; and so on till the evidence is so strong as to establish the conviction that the entire list of zymotic diseases both in animal and man is due to micro-organisms.

With these facts clearly established for us we may no longer remain skeptical. It becomes us to teach the people that diseases are not due to mythical causes, that they are not visitations from heaven, but they come from introducing these unseen organisms into their bodies through wounds, through the lungs—through their mouths with food or drink or otherwise. It is highly important that everybody be instructed concerning the truth of which lies here and that physicians acquire the habit of acting upon it as the truth instead of regarding it as doubtful theory. These micro-organisms are seeds which exist in the exhalations and expectorations of patients as well as their secretions and excretions, and are frequently and unconsciously strewn around over homes without any knowledge of the dangerous possibilities attending them.

Animals dead of anthrax may lie upon the soil and little be thought of it, but the bacilli will pass into the spore forms and remain attached to objects around that spot till it may be an animal capable of taking the disease grazes there or drink water which came from these, and another outbreak of anthrax is the result. The expectorations of consumption and diphtheria, or the discharges from the bowels of typhoid fever and dysentery, may be carelessly thrown around, and the organisms assume the spore state, and be distributed somehow either through the water or air, or become attached to some kind of food, and finally gain access to unfortunate victims. In this way epidemics take their origin, and the same method of reasoning applies to all epidemic and contagious diseases and plagues.

A legitimate question is sprung. How do micro-organisms produce the phenomena of disease? By direct action upon the living tissues which are consumed for purposes of nourishment, or in some other way? Pathogenic bacteria gain entrance into the body through their proper channel and may float around in the intestinal juices or with the blood currents or through the lymph streams till by the aid of their flagella or by a sort of amœboid movement, they are brought into immediate contact with and seize upon the cells of the tissues for which they have an affinity. This is not purely a chemical affinity, but a chimio-taxis, or marked individuality of action which leads them to be attracted by some things and repelled by others, and in consequence of

this property they exercise an elective affinity for the cells of the particular regions of the body. Contact with the tissues having thus been secured the process of extraction of nourishment begins and multiplication of the bacteria follows, and an action is set up in the living tissues of the human body precisely similar in its effects and results to what takes place in fermentation outside. Hence these diseases have been called zymotic.

Now the effect of this action of the micro-organisms upon the tissues may be either primarily or secondarily to produce disorganization of the cells—first by getting possession of their pabulum and killing them by starvation, or second by absorbing a part of their substance and appropriating it to their own growth and multiplication to destroy them partially or completely—or third, to assimilate the substance of the tissues and elaborate a new substance capable of exercising the same destructive influence. Now which view is the most probable? Evidence favors the last. In the first place it is argued that it is seldom the case that a sufficient number of the cells and tissues are acted upon directly by the micro-organisms to destroy the body even if they destroyed the cells. Many and large portions of the body may be sacrificed by surgeons and a gain of health and vigor result. Some diseases confine themselves to insignificant regions of the body and the micro-organisms localize themselves and are not found disseminated through it, but their action and presence is followed by the most violent results. Thus in lockjaw the bacillus is present and works in a very limited area, but the result is tetonic spasm of the entire muscular system and ultimately death. In diphtheria and pneumonia frequently only small surfaces are occupied by the micrococci and they do not spread through the general system, but great fever and frequent deaths often follow them. So that mere mechanical destruction of tissues by foreign organisms offers insufficient ground from which to draw the conclusion that loss of tissue substance accounts for the symptoms and result.

In the second place it is now a well established fact that the germination and growth of every kind of bacteria, whether in artificial cultures, or natural media in the outside world, or in living beings, are accompanied by waste products which have a definite chemical constitution and a range of physiological action capable of producing all the phenomena of disease from the languor of dyspepsia to the most violent inflammations. Therefore, the distinguishing characteristics of disease producing bacteria which we seek to differentiate seem not to be due simply to a propensity to live upon human cells and tissues, but to their peculiarity of furnishing substances of a chemical nature which makes us sick and cause to us disease and death. Then our interest in bacteria centres in the kind of products they manufacture.

Harmless forms produce many desirable substances, as alcohol, vinegar and lactic acid, etc., on the one hand, but on the othe other malignant bacteria produce many deadly poisons, the list of which is constantly growing by addition

of new ones, and some of these are elaborated within us out of our own tissues and others are produced without and may be introduced with our food stuffs. Thus we may be very cleverly poisoned through the agency of bacteria. Bearing in mind that bacteria are also cells analogus to vegetable cells it is not more difficult to ascribe to them the ability to construct poisons equally potential as strychnia and atropia than to believe that these substances are made by vegetable cells. In fine, bacteria are but one vast and extensive field of portable plant cells capable of building up every kind of food stuff or organic matter into chemical products, all of which have more or less action upon animals. A number of these substances have been isolated from the media in which they were produced by micro-organisms, and their chemical formulæ determined, and it is known that they possess infinite possibilities of damage.

The first of the bacterial poisons made the subject of experimental study were of putrefactive origin, and Jacquemart has divided them into two groups: First, the fluid and volatile, having a characteristic odor, and containing no oxygen. Second, the solid, non-volatile, containing oxygen. Belonging to the first are parvoline ($C_9H_{15}N$.) described in 1881 by Gautier and Etard and was obtained from putrefying horse flesh and mackerel; collodine ($C_8H_{11}N$.) was obtained from decomposing pancreas and gelatine; numidine $C_5H_{14}N_2$; cadaverine, $C_5H_{16}N_2$; putrescine, $C_4H_{12}N_2$; saprine, $C_5H_{14}N_2$; and others. Of the second group there are neurine, $C_5H_{12}N(OH)$; choline, $C_5H_{15}NO_2$; muscaime, $C_5H_{15}NO_3$; gadinine, $C_7H_{17}NO_2$; mytilotoxine, $C_6H_{15}NO_2$; typhotoxine, $C_7H_{17}NO_2$, and tetanine, $C_{13}H_{22}N_2O_4$, and others. Some of these substances have been prepared synthetically in the laboratory by chemists, but all are products of synthetic power possessed bacteria; and what is singularly striking is that their formulæ show them to be allied to or even derived from what is known as the pyridine base, and it is a further startling fact that not only does the most deadly poison known, cyanhyanic acid, form the chemical skeleton around which as a nucleus the microbial chemists may exercised their synthetic faculty in building up new and more subtle poisons but also many of them can give up cyanhyaric acid and at least two of them have been produced synthetically by operating upon it as the base.

In physiological effect as well as chemical composition these microbial products find a parallel in our most violent vegetable poisons. If not identical, the action of many of them is scarcely to be distinguished from that of curare, strychnine, atropia, coniine, nicotine, eserine, etc. They seem divisible partially into two groups—the one acting like atropine, the other like muscerine—two physiological antagonists. Lauder Brunton regarded paleness of the face and diorrhoea alternating with pain in the bowels and constipation as symptoms devoting the presence of muscarine like poisoning, while the atropine class produce dryness of the mouth, difficulty of swallowing, weight of the limbs, paralysis of the muscles of the eye, dilation of the pupil and double

vision, but the pulse is not quickened as in true atropine poisoning. All of these symptoms have followed poisoning by fish, by sausage, cheese and other things. Prof. Vaughan, of the University of Michigan, isolated from cheese tyrotoxicon and found it it produced diarrhœa and vomiting Panum obtained sepsin, a violent irritant, from decomposing animal matter, and found that six centigrammes were fatal to dogs. Cadaverine was obtained from putrefaction, and prepared synthetically also, aud was not only found in egg albumen when the cholera bacillus grew but also was found to produce all the symptoms and post mortem appearances of an attack of cholera when given in sufficient doses. Betaine was found in urine and acted like nicotine. Neurine and choline proved highly toxic and acted like curàre. They were obtained from putrefying flesh. Muscarim, obtained from putrid fish, acted like eserine. Binger obtained mytilotoxine from mussels after learning that nearly a whole family had died from eating mussels. The same authority obtained typhotoxine from cultures of typhoid bacilli, and it was afterwards produced from urine of typhoid fever. He likewise isolated tetanine and tetanotoxine and two other substances from cultures of tetanus bacilli, and demonstrated that they posessed a physiological action like strychnia. Koch has obtained tuberculine as the product of the bacillus tuberculosis. Scarlet fever, diphtheria and cholera have yielded a substance peculiar to each, and the law seems universal that bacterial products are to be recognized as a legitimate result of the action of bacteria everywhere.

Thus the similarity between microbian poisons and our vegetable alkaloids is great, and it is now no stretch of scientific license to draw the conclusion that pathology is founded on the presence of irritant material in the system, chemical substances of a highly poisonous nature, placed there by the action of minute organisms, sometimes produced without the body and introduced with food, but commonly elaborated within the tissues by pathogenic bacteria, and that the disturbances which we call diseases and their symptoms are not to be traced to the mechanical action of micro-organisms but to the absorption and circulation within the system of these products of bacterial activity. Charrin has demonstrated that the bacillus pyocyaneus and its secretory products set up organic lesions, as congestion and hemorrhage, infarcts and sclerosis, epithelial and vascular changes, and waxy degeneration of kidneys and liver.

This method of poisoning is not to be compared to the introduction of a single dose, but when the malignant bacteria are within us, their bare vegetation adds dose to dose, our tissues themselves constituting the raw materials in the elaboration of these terrible agents of disease and death.

But the picture is not wholly dark. On this cloud hangs the rainbow of the prevention of disease. Pasteur was the first to break new ground in this direction — first to root the plant, first to pluck the flower. This savant discovered that artificial cultures of the bacillus of chicken cholera pursued for a period of

nine or ten days on inoculation into fowls produces not only a trifling instead of a fatal malady, but also the fowls were thereby protected permanently from subsequent attacks· Moreover he found that on making fresh artificial cultures from this attenuated and weakened virus that he had produced a race of enfeebled bacilli capable of setting up only a mild disease, which, however, afforded protection against the inroads of the malignant forms. Thus the earnest of the triumph over zymotic diseases first appeared to Pasteur.

The next disease to receive attention was anthrax. Pasteur again comes to the front. He found that the virulence of this bacillus was greatly impaired by a temperature slightly in excess of blood heat, and that if they were kept in artificial cultures at a temperature of 42·43 C. for a period of forty-three days, they become so weakened as to be no longer fatal even to the most sensitive organizations. Furthermore he established the fact that fresh cultures started from these weakened ones preserved the character of the old ones, and animals inoculated with them suffered scarcely any indisposition, but were, notwithstanding, perfectly protected against anthrax. A like investigation proved successful in hog cholera and hydrophobia, with which the world is familiar, and in the crucible undergoing the final and crowning tests are Asiatic cholera, typhoid fever, diphtheria and lockjaw, 'ere long to take their places with variola.

Within the last few years investigation has turned toward the ultimate cause of this investigation, and the finger of suspicion pointed to the chemical substances generated by the pathogenic organisms. Not only did experimentation succeed in calling forth many of the symptoms of the diseases by injecting the products of the organisms from which the organisms themselves had been carefully removed, but it was found that the animal experimented upon was rendered immune. Hankin of Cambribge was successful in isolating a substance from anthrax cultures which has many points of similarity to snake poison and called it toxalbumose of anthrax, and he found it so poisonous that if he injected into a rabbit a dose of not more than 1-500,000 of its body weight the animal was killed, whilst if only half that amount was injected the rabbit not only did not die but was protected against anthrax; and by properly regulating the dose he succeeded in protecting white mice, the most susceptible of all animals to anthrax.

Roux and Yersin, French naturalists, showed that the characteristic phenomena of diphtheria intoxication, the special paralysis, could be produced by filtered cultures of the diphtheria microbes bacteria free, and proved the existence of an enzyme-like substance in solution in the cultures. But Behring was first to show that the blood and serum diphtheria in immune animals had the power to destroy the diphtheria toxine. Nevertheless Frankel was more successful in the method of vaccination. He found that heating diphtheria cultures three week old at 60-70 C. and inoculating guinea pigs under the skin with

ten to twelve cubic centimetres immunity was conferred at the end of two weeks. Behring achieved a measure of success by attenuating diphtheria cultures with the addition of trichloride of iodine.

Kitasato determined that all the symptoms of tetanus could be produced with the bouillon of a tetanus culture made absolutely free of bacteria by filtration, and that one-tenth of a milligramme in which the toxine was not more than one part in one thousand was sufficient to produce tetanus in mice. Moreover he discovered that white mice, in which he injected gradually, increasing doses of five to fifty milligrammes of serum from an immunized rabbit, were unaffected by fatal doses of tetanus poison, while others with the same dose without the immunizing serum died with tetanic symptoms. The exact dose was carefully determined sufficient to neutralize a given quantity of poison and guinea pigs and rabbits remained unharmed under the experiment.

The principle of immunity has been applied to yet many other diseases in animals and man. Klempner has given the results of the application of immunization in the treatment of forty cases of pneumonia in man; and more recently a way has been found of giving immunity against typhoid fever by Binger, Kitasato and Wasserman; and seeing the great number of immunizations being rapidly accomplished, one might almost conclude that immunization is a general principle and that all infectious diseases are curable by this method.

To give immunity to receptive animals and to augment it, when possessed to a certain degree, it is necessary to inoculate them with the serum of animals refractory and prepared, and this preparation is secured by saturating the refractory animals with the toxines of the corresponding pathogenic microbes.

The process of immunization presupposes the existence of an anti-toxic power, normally in the organism, or is created artificially in the process. Ropp of Munich obtained from the tetanus bouillon, through precipitation by means of natrium, ammonium sulphate solution, and rapid withdrawal of the fluid and drying in the vacuum exicator, a dry powder which contains the tetanus poison in active condition, and in a similar manner he also obtained from the serum of tetanus immune rabbits a stable powder of anti-toxic protective power; but just how one neutralizes the other is difficult to determine. Experiment has settled that it is neithe. due to simultaneous opposite destruction of toxine and anti-toxine like the establishment of equlibrium between two opposing forces, nor like acid and base to unite and form a neutral salt, but that it is a process which acts through the intervention of the body in which the organism is influenced by each substance in opposite directions and the action is one of physiological antagonism. Therefore, Buckner concludes that the anti-toxines are plasmatic cell substances of specific bacteria which accumulate in the immunized animal, and can be arranged neither with the enzymes, nor the toxalbumins of disease nor the normal alexims of the blood.

It would not do to conclude this inquiry without mention of the brilliant

theory of Metchnikoff, the great Russian bacteriologist. Numerous hypotheses have been offered to account for the injuries on the one hand done the body by micro-organisms and the power which the body wields on the other in resisting these attacks. That there is a struggle between them is sufficiently evident to the most superficial observer. In some cases the body invaded gains the victory—in others the micro-organisms are the conquerors. In some the struggle is speedily over; in others it is prolonged and doubtful.

Metchnikoff has advanced an attractive theory and marshalled a large amount of experimental evidence in support of it. He conceives this engagement on behalf of the body to be conducted by its cells and corpuscles and other fluids circulating through the tissues. The cells to which this martial spirit is assigned are the colorless corpuscles and other cells collectively known as leucocytes. These leucocytes possess a distinct individuality of their own, and not only have the power to people themselves about by what are called amœboid movements but also wander to different regions of the body and penetrate different parts with ease and in numbers in obedience to a law of their own.

It has long been known that the colorless corpuscles acted as the scavengers of the blood and would readily take up every kind of solid material which entered it, but it remained for Metchnikoff to discover their more important function. Not only is the menial service of keeping the circulating fluids clear of accidental substances assigned to them, but also the higher office of warriors, and when the enemy invades the sacred soil of the living body, the leucocytes muster their forces in large numbers and they manifest their belligerent spirit by engaging in deadly combat with them. It is a veritable battle, and to the victor belong the spoils. Leucocytes have been seen to approach and encircle nearly every form of bacteria and enclose them within the folds of their bodies, kill them, digest them, and cast out the remains. They subsist upon the daily influx of microbes constantly entering the blood, and their value lies in their voracious appetites, which leads them to devour unhesitatingly great numbers of these liliputian foes, whilst the invading army of malignant organisms in turn employ as their weapons of warfare the deadly poisons which ever accompany them and which they manufacture with such care and skill. The stronger and more formidable army prevails. Sometimes victory is with one—sometimes with the other. Leucocytes have been seen to destroy microbes, and microbes have been seen to kill leucocytes. The victory depends on the degree of virulence of the poison of the invading force. The poison is sometimes so deadly that it spreads dismay and consternation among the leucocytes, and they refuse to give battle at all, even though there be the most urgent call for their services, but contact with it may enable them to recover themselves, regain their valor, make a successful rally, and finally win the victory.

Of course, in this conflict between leucocytes and bacteria, if leucocytes are

defeated, the animal falls victim to the fatal disease, whilst, if the leucocytes are victorious and the bacteria are exterminated, the animal recovers, and the severity of the disease will depend on the severity of the struggle between the combatants. Moreover, if the leucocytes have once been the conquorers in a particular disease, they will secure an easier victory in subsequent attacks of it, and on this account, one attack of infectious diseases usually secures immunity against future attacks.

Therefore, we conclude that the leucocytes constitute a standing army or home guard for the defence of the body, and can be trained to attack and vanquish every kind of virus by first practising them upon the attenuated forms.

REPORT OF OBSTETRICS.

By H. H. Dodson, M. D., Milton, N. C.

The literature of Obstetrics for the year has been voluminous, and, from this array of material, it is difficult, in every instance, to select what is of real value and will prove true progress. We do not find a long list of new discoveries, but, more than ever before, an intelligent, earnest study of the conditions, means and resources already at hand. By this intelligent and conscientious study and watchful care of the pregnant and lying-in woman, fewer mothers are hurried to a premature grave. The reduction of mortality in hospitals from 20 per cent. to almost nil, is shown by recent statistics. The lessons taught by the successful management of these maternities, are well worth our careful study, and, while the difficulties in private practice are harder to overcome, still, it is our duty to surround every woman who is soon to become a mother as far as possible with the same safeguards.

MANAGEMENT OF PREGNANCY.

It is much to be regretted that so frequently in our practice we have no opportnnity to prepare our patients for labor. Unfortunately, we are not called until pregnancy is far advanced and complications already established. Too much care cannot be bestowed upon the pregnant woman. Besides looking after the hygienic conditions and surroundings, we should make more frequent examinations of the urine than is customary. Dr. Edward T. Davis shows the importance of this in a recent paper entitled Toxemia of Pregnancy. (Trans. N. Y. Med. Soc.) He analyzed fifty cases, fully one-third of which developed toxemia and required eliminative treatment. Dr. Sannier, of Chicago, (Jour. Obs.) thinks that labor can be made easier by preventing too great development of the bony structure of the child. This to be accomplished by the mother's diet. Any diet containing earthy salts should be avoided. He states that he has often seen softer and more cartilaginous bones in the child when the mother has been fed on acid fruit. This procedure, though somewhat novel, might result disastrously for the infant and badly prepare it for life. However, the author says he has used the method for twelve years and has seen " no bad effects, to produce osteomalacia, or other ill condition of the child." In women who give a history of post mortem hemorrhage and want of retraction and contraction of the uterus, and tardy, irregular and feeble contractions, etc., Dr. John M. Duff, recommends strychnia, highly.

NAUSEA OF PREGNANCY.

Dr. Giles, at the Lying-in Hospital, London, has analyzed the records of 300 cases of ordinary morning sickness, and concludes as follows: Women who habitually menstruate painlessly and scantily, suffer much less from sick-

ness than those who suffer much pain and lose abundantly. The degree of pain has a more marked influence than the quantity lost. That the sickness of pregnancy is not in any form physiological, and that vomiting is chiefly one mode of manifestation of nervous instability, and so dependent on the interaction of three main factors.

1. The increased nervous irritability of pregnancy.
2. A local source of irritation.
3. A ready efferent channel for nervous energy, (the vagi.)

The general irritability varies according to age, class, race and parity, and may manifest itself, not only by vomiting, but by chorea, eclampsia, hysteria or mania.

The analysis of so large a number of cases is valuable, and I fully concur with the opinion of the author, that the nausea of pregnancy is not physiological, but a nervous disease.

Vomiting ceases itself in half the cases by the end of the third month; therefore any deduction from treatment is unsatisfactory. Of the newer remedier I give the following:

Menthol—in 1½ grain doses. Oxerin—5 grs. three times daily in capsule. Fluid extract of Golden Seal, 20 drop doses, four times daily. Bromide of Strontium,—dose, about 30 grs. Arsenite of Copper. Nitro Glycerine.

It is the opinion of Dr. Robt. A. Reid that the artificial induction of labor, in this condition, would be seldom necessary, if we would resort to careful and systematic feeding through the rectum, thus giving the stomach rest.

THE FIRST STAGE OF LABOR.

The management of the first stage of labor, ordinarily, requires only time and patience, but it is a very erroneous idea that there is never any danger, and no interference is ever needed. On the contrary, the treatment of a prolonged first stage, oftentimes, calls for great judgment. The treatment of rigidity of the os, inefficient pains, manual dilatation and uterine inertia, have received considerable attention during the past year.

Dr. John J. Thomas, (Med. and Sur. Reporter,) has given ipecac a much more extensive trial than it has had heretofore. His conclusions are that it produces rapid dilatation and promotes regular and vigorous contractions of the uterus. It is quite as reliable as ergot. It will not initiate labor. Through its nauseating properties, it is easy to see how it may relax the cervix. But its oxytocic properties have been overlooked by the profession in general.

Dr. Anaker, of Chateaux Saliens, finds enemas of glycerine very effective in producing rapid dilatation and regular contractions. Sugar may prove to be a valuable remedy in uterine inertia. Prof. L. M. Bossi, (Gazzetta Degli Ospitali, No. 2, 1894, of the Obstetrical and Gyneological Clinic of Geneva), reports the results he obtains from sugar as an oxytocic in a large number of cases. He concludes as follows:

1. In ten out of eleven cases a positive ecbolic result was obtained from an ounce of sugar in eight ounces of water. This effect was observed, on an average, a half an hour after administration.

2. In some cases the one powder was sufficient to induce expulsion of the fœtus.

3. If a second powder was given after two hours the effect was more pronounced.

4. In no case were tetanic contractions observed, while, on the contrary, the contractions were regular, and no incarceration of the placenta was noted. Dr. F. R. Pritchard, Med. and Sur. Reporter, Mar. 17, 1894, gives conclusions somewhat different from the above. He says that sugar is an efficient oxytocic and devoid of danger—in ordinary and carefully measured doses. But in overdoses it will cause tetanic contractions.

For undilated os, with abnormally rigid margin, deep incision of cervix and perineum, according to method of Duhrssen, has been considerably discussed. It is especially recommended in cases of old primipara. Ordinarily this operation is only available in hospital practice.

SECOND STAGE OF LABOR.

Dr. J. Clifton Edgar, (Jour. Obs.) has made some experiments and clinical observations upon the more or less unsettled question—namely: What is the the cause of internal and forward rotation of the occiput in vertex presentation. While the author's conclusions, in the main, agree with those given by Lusk in his late work upon the Science and Art of Mid-wifery, yet I think any experiments which will decide, positively, the causes of this mechanism, are worth our careful notice. Because, without a thorough understanding of the mechanism of the second stage, it is impossible to apply any treatment intelligently. The author's experiments, which were borne out by the clinical observations, established the fact that a firm pelvic floor is the most important and chief factor in determining a forward rotation of the most most dependent portion of the presenting part, and that this is sufficient explanation. The author also gives his observations as to the birth of the shoulders, which are somewhat at variance with the statement of Dr. Lusk, who says "both shoulders make the exit from the vaginal canal simultaneously." Dr. Edgar says that the posterior shoulder is born first, three times as often as the anterior, in primipara. Two and a half times in multipara. Awvoid finds the posterior shoulder born first in twenty-nine cases, anterior nine. Leonet asserts that the anterior disengages in ninety out of a hundred cases, if the head is not supported and vice versa, if supported. Therefore, since the delivery of the posterior shoulder first avoids injury to the soft parts, in the largest number of cases, we should forward this end by lightly supporting the head, by pushing the anterior shoulder well up under the pubis, by slow delivery of posterior shoulder, and by allowing shoulders to be expelled by natural forces.

THIRD STAGE OF LABOR.

Atmospheric pressure is said to exert a decided influence in, and is often the sole cause of, detention of placenta. Cavilan has given the subject extensive study. He says that placenta resists uterine contractions and tractions upon the cord, expression, etc., but promptly yields to perforation of its centre. He believes that cases of real placental adhesions do exist, but are extremely rare and, ordinarily, are simply retention from atmospheric pressure.

Single ligature of the cord presents some advantages, according to Uguyen-Khac-Can, in the delivery of the placenta. Double ligature, the delivery averaged sixty-four minutes. Single ligature, only twenty-seven minutes. Rapid diminution in the size of placenta, due to the free escape of intra-placental blood, favors retro-placental hemorrhage and consequent complete separation of the placenta, and diminution in its size, expedites its delivery. The writer thinks that double ligatures should be reserved for double birth.

PREMATURE EXPULSION OF THE OVUM.

Dr. McEvitt, (Brooklyn Med. Jour.) says that curettement is generally adopted now by the progressive members of the profession in treatment of non-preventable and incomplete abortion. Dr. Stahl claims there is less danger of sepsis in digital curettement, because there is geater traumatism from instruments, and, frequently, fragments of membranes are left behind. Herman believes that there is great danger of leaving fragments or membrane behind, if either the curette or finger is used. He packs, firmly, the vault of the vagina with iodoform gauze, changing every twenty-four hours, and continues this many days if needed. When there is sufficient dilatation, introduces two fingers into uterus and grasping the fundus, does not break loose the ovum with the fingers, but moves the fundus about over the fingers carefully, and slowly separating the ovum from the uterus.

Of 184 cases of abortion studied by Prof. McStumpt, 167 were treated by the expectant plan alone. One hundred and forty-two recovered without any complications whatever, and he thinks that this method should not be displaced by the active means more recently advocated. Dr. Edward T. Davis opposes forcible dilatation and eradicating the ovum, and thinks it often inflicts traumatism and adds new danger of septic contagion. The uterus occasionally retains the ovum for an extraordinarily long period, without danger, and this would rather lead us to conclude that radical interference, without the co-operation of uterine dilatation and expulsion, is contra-indicated in these cases. The curette may prove a dangerous instrument and every case of incomplete abortion cannot be in hands skilled in its use. The old treatment of tamponing the vagina has still many able and zealous advocates, and, if performed with anti-septic precautions, there is small danger of sepsis.

POST-PARTEM HÆMORRHAGE.

Dr. T. Ridgeway Barker thinks that the danger of post-partem hemorrhage

is directly in proportion to the coagulability of the blood and the persistence of muscular uterine contraction and the first condition is made manifest early in labor by the blood which issues from the vagina, and therefore may be accepted as a danger signal and precautions taken. Recently some European savants (according to the Med· Age) have enthusiastically advocated strychnia in hemorrhage, claiming for it powers transcending ergot. It causes uterine contractions in the same way as it tends to tonic excitation of the heart. Tarnier strongly advocates the modern method of introducing the hand into the uterus and sweeping out the clots, and intra uterine injections of hot water. Herman thinks that the most rational means of arresting hemorrhage is compression of the vessels, with one hand on the fundus, the other hand—fingers closed—pressed against the cerix. He thinks that the late treatment of packing the uterus with iodoform gauze, is not devoid of danger, as it may allow air into the veins, and it prevents normal contractions of the uterus. Dr. T. Shaw speaks of introducing the right hand into the uterus and sweeping the back of the hand over the bleeding sinuses of the placental site, at the same time counter pressure with the left hand. He says this method controls hemorrhage by causing, prior to uterine contractions, the uterine sinuses to collapse by manual pressure. The anemia resulting from post-partem hemorrhage has been treated successfully by Dr. Warman (Therapeutische Monatshefte) in a number of cases, by the rectal injection of a salt solution. The action is more rapid and the solution more readily absorbed than by the intravenous and sub-cutaneous methods.

ECLAMPSIA.

"The time honored relations of albuminuria and puerperal eclampsia, as cause and effect, are called into question." But how much real proof we have of the value of newer theories, remains yet to be settled. Among pathologists there seems to be a great leaning towards the germ theory; they find micro-organisms in the blood of pregnant women, independent of albuminuria. Kalenbach and Gerdes, state that the eclampsia bacillus is the sole cause of puerperal eclampsia. It is found in no other disease. That the inflammatory process starts from the uterus, probably from an endo metritis, prior to conception. And further, it is probable, though not yet demonstrable, that eclampsia is not caused, directly by the microbe, but by the action of a toxine, produced by the microbe, upon the nervous system, modified by pregnancy. Depaul sums up the various hypotheses in regard to the pathogenesis of puerperal eclampsia as follows:

1. Eclampsia is due to cerebral congestion.
2. It is a neurosis.
3. It is a result of renal lesions.
4. It is a result of some alteration in the blood.

Herman, Med. Press and Circular, points out that when the albumen in the

urine, consists mostly of cerum albumen, the prognosis is grave. Hence the importance of practitioners accustoming themselves to test for the presence of para-globulin, as compared with serum albumen. He thinks the treatment of albumenuria of pregnancy is practically confined to the induction of premature labor. This view is entertained by Dr. Lusk, who states that, until recently, he stood alone in New York as its advocate.

INDUCTION OF PREMATURE LABOR.

Pelzer has investigated the action of glycerine in the induction of premature labor. Six drachms injected between the membrane and the uterine walls initiates and increases uterine contractions. This effect is produced in from thirty minutes to two and a half hours.

SYMPHYSEOTOMY.

The attention of the physicians of the whole world, within a recent date, has been attracted by this operation more than any other in Obstetrics. First performed in this country March 12, 1892, by Dr. William Thomas Coggins,* Athens, Georgia. Until late in October last Prof. Chas. Jewett, of Brooklyn, was supposed to be the pioneer on this side of the Atlantic. That it will displace the Cæsarian operation, when flat pelves, with contraction above 2¾ inches exists, is more than probable; especially if the claim of its advocates is borne out, that the pubic joint heals rapidly, with no crippling of the patient. Already embriotomy, on the living child, is no longer justifiable with the modern Cæsarian operation. According to statistics, as given by Dr. Robt. P. Harris, the operation was performed twenty-seven times in the United States in 1893. Forty operations in North and South America, with four women and nine children lost. A mortality of 10 per cent.

PUERPERAL FEVER.

Puerperal sepsis cannot always be cured but, in most cases, can be prevented. Whether this condition is due to anto-infection or hetero-infection we cannot disregard asepsis. The use of antiseptics is simply a means to an end—cleanliness. We should ever be on the alert for any possible danger—sepsis is our greatest foe. Cleanliness, in the strictest sense, is what we want. Clean bed, clean room, clean woman, clean doctor, clean attendants, and here let me add a plea for the more general use of the rubber obstetric pad, not alone for its convenience, but for its protection and cleanliness. Often we are called to a patient, where the bed is imperfectly prepared, not alone due to carelessness or ignorance, but for want of means to obtain this protection. The pad is cheap, quickly cleaned and convenient, easily rolled up and carried in your bag. To my patients it has given great satisfaction, for after the delivery we have a clean and dry bed and no immediate necessity for changing

*Since this paper was read, thorough investigation by physicians in Dr. Coggin's neighborhood, fails to verify his claim of having performed this operation.—[SEC.]

the clothes of the woman. The rules governing aseptic and antiseptic midwifery are greatly disregarded in private practice. The woman should have a general bath prior to labor.

The bowels should be thoroughly evacuated. With the first manifestation of pain the abdomen and genitalia should be bathed and rendered aseptic by further application of antiseptic solution, and a warm, vaginal, antiseptic douche given. Protect the vulva and vagina with antiseptic pads, changing as often as necessary during the labor.

The douche, before labor, is still under discussion. Those who oppose the douche, holding that it washes away the natural mucus, and that there is also danger of sepsis from the instrument. On the other hand the claimants for the douche, of whom such men as Price, Garrigues, etc., are conspicuoues, say that it not only cleans the vagina but the mucus rapidly re-accumulates and is poured ont in abundance, and with an aseptic, parturient canal. there is no fear of opthalmia. There is another argument for the douche which might save the woman from infection. Oftentimes we are preceded by that death-dealing harpie the midwife, who, in her arrogance and ignorance, proceeds to stake off her claim before we arrive by complacently making an examination with a finger *by no means aseptic.* Few vaginal examinations as possible are advocated; in fact, some advanced obstetricians advocate external palpation alone as the means of giving the necessary information, etc. Thorough cleansing of the external genitals with soap and water and with antiseptic solution is necessary. The application of the antiseptic pad, after labor, is generally admitted to be of vital importance.

Puerperal infection, originating in the vulvo vaginal region, is treated by vaginal irrigation, with antiseptic solution, cauterizing slight ulcers, and the local use of iodoform.

For pueperal infection of the uterine cavity, antiseptic irrigation, curettement and packing with iodoform gauze is the treatment in vogue. Abdominal hysterectomy, when the uterus and appendages become infected, is now advocated. A few cases have been reported and are said to be encouraging.

EXTRA UTERINE PREGNANCY.

The literature of ectopic gestation for the year has been very full. This shows not only a great interest in the subject, but that this dread condition, which for so long was veiled in obscurity and surrounded by doubt and uncertainty, is now being more generally recognized. The diagnosis, and especially the early diagnosis, rests with the general practitioner. As to treatment, the profession is divided. But the majority favor operative interference as soon as diagnosis can be made. Operate early and late, without regard to the viability of the child. But Dr. Joseph Price, while considering the treatment of this condition pre eminently surgical, yet with an experience of eighty-six cases, says that he would not be willing "to lay down any hard and fast rules for the operation in late cases, approaching full term." The electrical treatment has some zealous adherents. It is applicable in the first three months if no rupture has occurred.

Statistics, as given by Brothers, show only one death in seventy-eight cases treated by electricity, without puncture. The treatment retains its reputation for harmlessness and can be safely used by general practitioners.

INSANITY AS A PLEA TO EVADE THE LAW.

By A. Cheatham, M.D., Durham, N. C.

In selecting this subject it is not my purpose to enter into a scientific classification or discussion of the various forms of insanity, nor do I expect to bring forward anything new; but I hope to recall some things that may be utilized for the benefit of this unfortunate class.

In proceeding to the practical investigation of unsoundness of mind, in its legal and medical consideration, we enter on a subject of general, as well as special interest.

Every psychophatic inquiry entails a deep and solemn responsibility. It is not my wish to magnify, and it would be equally unjust to speak lightly of its difficulties.

There have been witnessed deviations from the perfectly correct in conduct and amiable in manners and minor moralities, which only a post-mortem examination only has accounted for, and it has found traces of disease heretofore unsuspected.

We should infer from this that in criminal cases when the plea of insanity is made that the existence of physical disease affecting the nervous centers should be considered of the greatest importance.

We are not warranted in asserting that because a mind may apparently be healthy, it is absolutely true or that it gives forth evidence identical with that of a diseased mind, that they are the result of a disordered mind.

Since the individuality of persons is so varied, what would be unmistakable evidence of a morbid condition in one, may (in another) exist and yet indicate a healthy mental condition.

Insanity, from its intrinsic interest and importance, has engaged the attention of thoughtful men from a very early period and despite its inherent difficulties, still becomes more and more prominent in science; and its special characteristics, with its inherent difficulties, suggest the probability of its being one of the last, if not the last, of the diseases which science will master.

The actual development of the mind and of the body maintain no necessarily uniform proportion to each other.

Observation demonstrates the fact that "physical strength and mental imbecility, and mental powers and physical disability, are found to be entirely compatible with each other," and that there is no inter-dependence between them. Dreams, sonambulism, and the dying hour give testimony that they are capable of independent action, and that physical organization is an accidental and essential condition of the existence and function of the mind.

We know and can know mind only as it is manifested in and through the

physical organization, and any attempt to determine its nature and attributes would be purely hypothetical, as well as foreign to our purpose, and wholly of speculative value, without a thorough comprehension, not only of the anatomy and physiology of the brain, but of the whole man.

In the diagnosis of disease, the history of the case is, as we all know, an essential factor to show its development and progress; and it is of more importance, when we come to deal with mental disorders, that we should get the history of the patient, and also of his or her family.

"Mental operations present innumerable deviations from the approved standard of sanity, and they cannot be received per se as evidence of disease, owing to the capability of independent action of the intellectual faculties of the sane, and the un-sane mind, they may be perfectly unisent and baffle the most learned expert unless he be habituated to question with accuracy, and to reason with caution."

The question of unsoundness of mind in its relation to criminal acts is a compound one, and the physician has to decide the relation of crime to insanity, and of insanity to disease.

"We too often form our estimate of the character of the patient without taking into consideration those circumstances which are known to influence human thought and action."

The state of the organization and the health ought to be well weighed before we pronounce authoritatively the motives of individuals, or denounce them for not acting or thinking according to what our preconceived opinion has taught us to consider as correct.

Physical causes, although they may be remote from the nervous center and apparently isolated, are capable of exerting a powerful influence over its operations, and may modify its character.

The same apparent physical causes may co-exist with perfect mental health in one, and in another be identified with, if not the cause of, a directly opposite condition.

"It is a mystery involved in the very fact of our existence that such should be the case, since the closest investigation has resulted in no further discovery than that it is so. Law may define the ethical position as regards the act, medicine fixes the psychoethical responsibility as regards the individual."

One of the greatest legal minds of the age has said: "To allow a physician to give evidence to show that a man who is legally responsible is not morally responsible, is admitting evidence which can have no other effect than to persuade juries to break the law." Perhaps a remorse of conscience prompted the gentleman in trying to divide his honors.

The physician has never claimed more than to be allowed to estimate the influence physical changes exercise on psychical operations, and it is in virtue of the presence of those changes that his opinion is to be regarded as of value.

It is not his intention or desire to persuade juries to break the law.

"Counsel frequently acquire their ideas of soundness and unsoundness of mind, as some do their notion of special affections, from nosological books which lay down fixed description of disease.

"Physicians on examinatiou may admit the general truth of the one, and allow the accuracy of the other."

Who is there among us who has not seen the "book-worm student" at the bed-side groping around looking for a typical case, just as he read it in some book, but has felt that the most important part of his knowledge was wanting, in the capability of applying the information he had acquired?

The lawyer is the "book worm" student;" he quotes opinion after opinion of men learned in medicine and law, who may be has rendered a decision on the observation of a single case, and declares his capability of fully appreciating the various phases of a most intricate disease; but how quick his most boasted knowledge of disease vanishes when the hand of disease is laid on him.

It would be just as rational to expect that the jury if guided by his opinion on the soundnsss, or unsoundness of mind in a particular case, should place equal reliance on his advice respecting their individual state of health; but this is a proposition to which few would agree, not even the learned gentlemen at the bar; for in their own cases they would ignore the competency of counsel to estimate the practical application of a science which they feel must be studied in the great volume of nature, not in books alone. The lawyers generally are unsuited, if not incompetent, to conduct a psychopathic investigation, even allowing they could divest themselves of natural ambition to make glory for themselves, rather than contend honestly and earnestly for a verdict of justice.

A crime is committed, the plea of insanity is raised, and nothing but the act itself affords grounds for such a plea. On the closest examination, the physician can detect no traces of physical disease, or other evidence of disordered nervous function, than such as are denoted by the perpetration of the act. Again, another individual, to all appearance in the enjoyment of perfect bodily health, is found to be suffering from an affection of the nervous center, and is found to be of unsound mind. To the untrained observer both are as other men.

Thus while the community at large can contrast only the doubtful cases with the sane, the physician has at his command the alternative of contrasting with the sane and insane. This view, however, would be open to the criticism of some who will say that "crime is not clothed in such deceptive robes, or sanity so enveloped in mystery as to require such minute discrimination.

"Who would not know a villian, who could not recognize an insane? The villian is too often the insane."

It is the office of the court to inform itself, as far as practicable, on the general results of medical observation, and bring the two sides face to face and

search for a fit conclusion by alternately presenting the possibility of sanity and of insanity.

It is because of this alternative method of observation that the question of insanity falls to the lot of a legal tribunal, and is not out of the reach of common observation, and is therefore fit to be considered by a jury only with medical guidance.

We believe in the views now acted on in most medico legal investigations for physicians to carefully examine as to the soundness or unsoundness of mind, with the exception of counsel being allowed to lay restrictions on the witness, which often-times perverts the real truth; for in psychical as in physical diseases illustrations arise in which broad and distinct differences exist, denoting an unhealthy or altered condition. "He that would not deceive himself ought to build his hypothesis on matters of fact, and make it by sensible experience and not presume on matters of fact because of his hypothesis."

In most trials matters of fact and matters of opinion are submitted to a jury; the values of matters of opinion must be proportionate to the capability possessed of forming that opinion.

When we consider the question of unsoundness of mind in its relation to responsibility for a criminal act, it may rest on admitted matter of fact, by which it is possible the jury may decide the issue; but when those matters of fact come to be estimated in their morbid relation they are thereby converted into matters of medical opinion, and the court should not hesitate to be guided by the same.

A writer of ability has said that his experience taught him there were very few cases of insanity in which any good came from the examination of medical men, their evidence some time "adorn a case, and give rise to very agreeable and interesting scientific discussions, but after all it has little or no weight with the jury."

We all will admit that when on the stand, we too often allow ourselves to be drawn into these "very agreeable and scientific discussions" by designing lawyers; but just here we should guard ourselves well, and not be side-tracked from the facts in the case to minor points and thereby become a party to the throttling of justice and the perpetrating of a crime against society.

In this day and time we are having too many cases before our courts that seek the protection which society has established for this unfortuate class, and too often, I am afraid, defendants are advised to make this dodge by counsel. No! not counsel, but by the "shyster."

The visitation of the wrath of God and man should be on him who dares pervert this sacred protection.

It beehoves us to exert every effort in establishing and upholding the most complete justice for those unfortunates whose mental integrity is invalidated.

For character, friends, fortune, reason, intelligence, hope, love, and all that

renders life tolerable and happy, hang upon the slender thread of cerebral health and regularity of action. "Who is exempt from the visitation of disease? confined to no class, identified with no portion, peculiar to no country, old and young, rich and poor, our neighbor, and the stranger are alike within its reach, potent in its shape, insidious in its effects, blighting its victim and spreading desolation around."

Insanity while isolating man from his fellows appeals to their warmest sympathy, and at the same time honors medicine by intrusting each wavering mind to her special care.

It is the duty of every physician to guard well this sacred trust which his fellow man has intrusted to him, and to see that wolves in sheeps clothing enter not into the shepherd's fold.

A CLINICAL NOTE ON GLAUCOMA.

By Richard A. Lewis, M.D., Raleigh, N. C.

In a paper entitled "A Few Plain Words on Glaucoma," which I had the honor to read before the Society at its meeting two years ago in Wilmington, I called attention to the fact that it was sometimes accompanied with fever, nausea and vomiting, and that in a malarious region such a case might be mistaken for remittent fever. Having just had a case beautifully illustrating this point — although the mistake in diagnosis was not made by the attending physician — and believing that papers of this class, i. e., having a practical bearing upon their practice, would be more acceptable to an audience of general practitioners, as well as in better taste on the part of the specialist, than discourses of a more recondite character, I have thought it well to briefly report it.

On March 7th Mrs. S., of Granville county, was sent to me by my friend, Dr. T. L. Booth, of Stem, for failure of sight in the right eye. Aa ophthalmoscopic examination revealed appoplexy of the retina — numerous particles of extravasated blood scattered thickly over the fundus. An unfavorable prognosis was given, and in a letter to Dr. Booth iodide of potash in a bitter tonic was suggested as being about as good a thing as anthing else, though it was not expected that it would be of material benefit.

Three or four weeks after her return home I received a letter from the Doctor saying she was suffering greatly with the eye and head. I replied that a glaucoma was a very common sequel to appoplexy of the retina; I thought it more than probable that she had hemorrhagic glaucoma; to look for it and report. He soon replied that the day he wrote he had made the diagnosis of glaucoma. He then detailed the very intelligent and proper treatment he had been using, including pilocarpine, and asked for further suggestions; to which I replied that he might try eserine sulphate (if he could find any in the drug stores of his neighborhood), of the strength of 1 grain to 1 ounce of a 4 per cent. solution of cocaine, every hour, or, failing the eserine, a pilocarpine solution of twice the strength, with cocaine, in addition to what he was already doing, but that, in my opinion, nothing short of surgical interference would give her relief, and that the proper surgical procedure would be enucleation — that the eye was hopelessly lost — that iridectomy in such cases was generally worse than useless, doing positive harm, and that sclerotomy, while somewhat better, was uncertain.

On the 18th of April I was summoned to perform the operation. An examination of the eye showed little redness, an oval, dilated, fixed pupil, haziness of the media and marked increase of tension, with no perception of light. A plain case of glaucoma of much severity. On the following morning the usual

operation of enucleation was performed without incident under ether administered by Dr. Booth, his father, Dr. J. W. Booth, being also present.

The following is a history of the case kindly furnished me by Dr. Booth:

STEM, N. C., May 3, 1894.

Dr. R. H. Lewis, Raleigh, N. C.:

MY DEAR DOCTOR.—Your letter was received some time ago, and am sorry that I have not been able to answer it before, but I am just now beginning to sit up a little from an attack of dysentery, and even now hardly feel able to write.

Mrs. S. is doing perfectly well — is sitting up and going where she pleases. There is still some discharge from her eye. She has not had the attention since I have been sick that she would otherwise have had, or this would probably not be the case.

I have kept no notes of her case, but perhaps can remember sufficiently well to give you enough data to answer your purpose. I will say nothing of her primary trouble with her eye, as you know all about that from your own notes. Other than a simple antiseptic application before you saw her, I gave her no treatment for that, except what you suggested, viz: pot. iod. and tr. cinchonæ co. This was, of course, discontinued at the beginning of the secondary trouble.

Some time during the latter part of March, I was called to see Mrs. S., and found she had erysipelas of the scalp. The inflammation was superficial, though she had a temperature of 103° and complained of severe headache. I gave her acetanilid, 6 grs., which reduced the temperature to nearly normal and greatly relieved the headache. After a few days treatment the erysipelas was much improved — so much so that she was able to sit up and walk about the room. She had had no rise of temperature since the first two days of the attack.

About the 1st (on the 2d, I think,) of April, I was called to see her in the afternoon and found her complaining very heavily of pain in her eye and head on the right side. Temperature 102.5°. Eye very red, but I could discover nothing else abnormal in its appearance. I gave acetanilid, grs. 6, and ordered calomel, grs. 5, to be taken; also ordered the eye to be bathed in hot water for twenty minutes. The acetanilid reduced the temperature to about normal, but failed to relieve the pain. After a few hours I called to see her again and found her still suffering very much. I gave morphine, ¼ gr., hypodermically (Mrs. S. is 68 years old), and left her. During the night she became very much nauseated and the pain still persisted. I was called, and thinking perhaps the nausea was produced by the morphia, I did not repeat the dose, but gave svapnia, grs. 1½, which also failed to have any effect whatever. In a few hours I gave morphia sulph., ¼ gr., atropia, 1-150, hypodermically, which accomplished as little good as the others had done — indeed, the nausea seemed to in-

crease. Applied counter irritation to stomach, continued hot baths to eye and gave morphia sulph., ⅓ gr., ext. hyoscyam 2 grs., camphor 1 gr., to be repeated every four hours. This gave no relief. The calomel having failed to operate in the morning, I ordered an ounce of castor oil given, which operated freely.

On the 3d or 4th I wrote to you for advice, being much puzzled to know what was the cause of so much pain and nausea, and, suspecting that it was in some way connected with the diseased eye, on the same afternoon I examined the eye and found that sight was entirely gone, pupil dilated and very sluggish, if, indeed, it responded at all to light, and the tension of the globe much too great. I at once recognized glaucoma, as I perhaps should have done before, and began at once to put into the eye pilocarpin muriat., grs. jss., aqua, ℥ ss.—a few drops every two hours. This, like everything else, did no good. I about this time gave antikam, grs. xij., morphia sulph., grs. ss., which produced about four hours sound sleep. During the whole of this time, except when reduced by acetanilid, temperature had ranged irregularly from 101° to 105°. Patient now expressed herself as feeling better — had but little pain and temperature was only 99°. But this was not to last; about midnight the pain returned and following it the nausea, quite as bad as ever. I repeated the antikam and morphia as before, but this time it failed to have any effect. I gave codeine phos., grs jss., hypodermically, and repeated it in two hours, with no effect more than an hour's restless sleep. Gave codeine sulp., grs. jss., every four hours, with no effect. Gave tr. hyoscyam and f. e. stramonium, but they gave no relief.

On the 9th I received a reply to my letter to you, and at once substituted your suggestion of "4 per cent. solution cocaine, ℥ j., pilocarpine mur., gr. ij—a drop or two in eye every hour"—for my simple solution of pilocarpine, but there was no change. I suggested an operation, but patient preferred to "wait a while," during which waiting I went through the whole list of anodynes almost, and found nothing which gave any relief. Patient would sleep an hour or two sometimes, but more because she was exhausted and slept in spite of the pain and nausea than from the effect of drugs.

After about the tenth day there was no more rise of temperature. It is strange that, although the nausea was constantly present, there was at no time any vomiting, and she took all the nourishment I desired.

On the 14th I urged the necessity of an operation, which was consented to. You reached here on the night of the 15th and saw the condition she had been in for days. You also, doubtless, remember how heavily she complained of nausea when she was put on the table for the operation, and, indeed, even until she was under the influence of ether. After the operation, since she recovered from the nausea produced by the ether (in about twenty-four hours), she has had no trouble of any kind whatever, and, as I stated in the beginning, is able to walk about where she pleases.

I have never been called upon to treat anything in which the pain or nausea has been so persistent as it was in this case. Had I recognized the glaucoma earlier and applied remedies more appropriate in the beginning, perhaps it would not have been so severe, but, like many men in my position, I am very deficient in a knowledge of diseases of the eye.

If there is anything which I have omitted and which you would like to know, I will take pleasure in giving it to you.

Yours, very truly,

T. L. Booth, M.D.

Here we have a case of eye disease pure and simple, which, if it had occurred in a different section of our State, might have been easily mistaken for bilious fever. So that whenever an eye is affected in a case of what appears to be disease of a general character, especially when pain in the head and nausea are present, the eye should be carefully examined and treated for the cure of the general and remote symptoms. In this case the nausea, which was extreme just before the operation, was very much less long before the effects of the ether — usually the cause of intense nausea — had passed off.

ANNUAL ORATION.

By E. G. Moore, M.D., Elm City, N. C.

Mr. President, Fellow Members of the Medical Society of North Carolina.:

Ladies and Gentlemen: — No member of this Society received the intelligence that your committee had selected me to address you on this occasion with more peculiar astonishment and intense surprise than myself. I stand appalled at the undertaking, and nothing save an appreciative sense of duty gives me courage for the task. I would approach the responsibility of this occasion with a consciousness fully awake to the magnitude of its distinction and with a keen sense of realization of my utter unworthiness. I trust I may receive your charity and forbearance and your indulgent sympathy, for it would be beyond the limit of reasonable expectation for me to attain the high water mark so ingeniously, so successfully, and so beautifully written by your graceful and classical orator of a year ago. Could I hope to inspire your minds with thoughts and your hearts with feelings so pure and fragrant, no greater distinction would I ask and no loftier purpose would I desire. And yet this occasion is not without its inspiration. These native hills breathe the spirit of revolutionary fame. The renown of war, the heroism of battle, its sacred historic memories inspire our hearts and renew within us the spirit of ancestral love.

> "Breathes there the man with soul so dead
> Who never to himself hath said
> This is my own, my native land?"

But peace hath her victories no less renowned than war and it is refreshing to return to this thriving city after a decade of years and note the spirit of her industry and her progress.

Historic Greensboro! I would speak with the voice of one whose associations were of tenderest sentiment and whose softest emotions are awakened at the mention of her poetic name. Here amid her shaded trees and wealth of flowers, the notes of song and winsome smiles of sweet and beautiful maidens engulfed our affections and bespirited our heart away. But, Mr. President, in the selection of a subject for this occasion I have found myself at sea and almost without a star to guide my trackless course o'er the darkened way. Great minds logical in thought, rhetorical in speech and fervid in eloquence with impassioned zeal have addressed you at these annual meetings and it is with grave fears and misgivings that I would undertake to speak to you tonight on

"PHYSICIAN KNOW THYSELF."

It has been said by a writer whose authority you will doubtless remember that there are three animals that are known by their scent, the Billy-goat, the

skunk and the doctor. It will not be my purpose to speak of the first two in the high order of their rank, nor the odorous characteristics of the mediocre doctor. For the charlatan and the quack and the fiendish imposter who preys upon human credulity and fattens upon its spoils I have no words of comfort or praise. I would consign him to the narrow confines of his unfortunate climate, bar the door of our progressive society and physic him with boluses and draughts of his own pharmacopæia.

Regeneration would be impracticable, reproduction impossible.

The physician, as commonly understood, is one who ministers to the sick, who professes the art of healing. How to prevent and successfully combat disease is held to be the chief purpose and main object of the profession. The two wishes paramount in the minds of the generality of mankind is health and long life, or health and how to keep it, and the solution of this question with all of its perplexities and responsibilities is entrusted to the careful thought of the conscientious medical men whose pleasure and privilege it is to minister to this universal desire. Fortified with science, imbued with conscience, equipped with experience and sustained by a high sense of the great responsibility he assumes in dealing with human life, he goes out with full armor on to battle with the invisible foes marshalled against the health and happiness of his fellowman. How high his vocation, how laudable his purpose, but how great, how fearful his responsibilities.

A human life entrusted to his care, an immortal soul that may be blessed or blighted forever by the thread of influence that binds unconsciously the fraternity of man.

In the full glow and vigor of manhood, when the mind and body are in perfect health, the blood springing exuberantly from the heart, the nerves all flashing the electric currents of life, to live in this state of physical perfection is God's richest gift to man. Yet this picture, so beautiful in outline, is a representation of a rare condition of human economy.

Man's frail tenement of clay is besieged from within and without by countless hordes of the multiplying germs of disease. The air we breathe, the water we drink, the food we eat are all pregnant with the agencies of disease and death. The human life from the cradle to the grave is a target for their winged darts, and somewhere along life's fateful journey impales its victim with the javelin of disease. This law of antagonism prevails everywhere, this struggle between life and death are contending forces whose ceaseless warfare knows no respite and heeds no pity.

We see the opening flower contending with the withering leaf, the swelling stream with the enduring hills, the shadows of night with the glories of day and the moloch of death pressing hard on the heels of life and health. It is written in all nature, its foot-prints are seen in every land.

But in the practice of medicine we have two departments, the science and

art. It is self evident that a knowledge of the science must precede the study of the art. It is also essential in order to attain the greatest success that the important scientific branches upon which it is based must be thoroughly understood and mastered, that a true conception of its foundation stones must be comprehended.

This knowledge constitutes the physician's breastplate and weapon of defense when the great crisis comes. Medicine is a progressive science, constantly evolving new lines of thought and new fields of activity and it requires the closest application to keep abreast with the demands of the hour.

Judgment must be used in the application of remedies and this judgment must be based upon a knowledge of the construction of man and the pathology of the organ involved. Stereotyped formulas of shot-gun prescriptions and the empiricism of former days are reckoned as post stages in the various phases of the evolution of the science and art of medicine among progressive physicians.

We are happy to note this healthy growth, this advanced step to a higher knowledge of the sublime truths underlying the life of the masterpiece of nature's organism. But the prophecy of medicine has not yet been fulfilled, so long as disease makes inroads upon the domain of health, so long as death, the arch enemy of humanity, remains the conqueror of all human endeavor, so long as the human heart is responsive to the divine call of the healing art, so long will the great mission field of medicine, boundless in its proportions and infinite in its possibilities, remain the camping ground of every veteran soldier who has an arm to strike and a heart to feel.

But the grandest attribute of man is mind, is knowledge, the true apprehension of the ego, the human I am.

In this apprehension is the knowledge of divinity and all that is true and beautiful and good. Wisely has it been said that knowledge is power. It is the great motive force that turns the wheel of progress, the great headlight that illuminates the way to all great achievements, the *ne plus ultra* to all success. If the signs of the times indicate anything this is a period of inventive genius and practical mental power. Physical powers has had its day and the age of brain and reason has dawned. We see its effects on all sides, in politics, in religion, in science, in inventions, and the Medical Society of North Carolina is no laggard in the race. I would come with no words of fulsome flattery or words of unbridled praise, but I speak the words of soberness and truth when I declare to you that North Carolina ought to be proud of her Medical Society and the record her physicians have made. Disease is as successfully treated here as anywhere and surgery is executed with a skill that excites the admiration of the more learned specialists. But far to the South where genial climes are made odorous with the fragranee of flowers and ambient skies bend lov-

ingly over beautiful landscapes the deadly scourge of yellow fever, like a "pestilence that walketh in darkness" with fateful step, reaps its harvest of human lives.

With unremitting care and ceaseless vigilance her physicians, like sentinels, are guarding the outposts, and with a bravery seldom equalled and never excelled minister to the affections of their suffering people. The eyes of the world are turned to the dissipation of this disease. Who will be the herald of the coming day? I have faith in the future and let me indulge the hope that the North Carolina Medical Society may develop the master mind, the immortal hero, whose dauntless spirit will give to the world the method of successful treatment and enroll his name high on the temple of fame to there live forever in song and in story. The morning seems to dawn, the reflected light of the rising sun is breaking o'er the hills, and we are standing in the full glow of that coming day when Truth, in robes of spotless white, will ascend the throne, waving her sceptre, and bid "error, wounded, writhe in pain and die among its worshippers." The world of thought glows with new brightness, prophesied realities one by one are breaking away from the clouds of mist and standing in the sunlight of man's inspiring hope.

These ideals are the germs of future growth, prophecies awaiting momentous fulfillment, foundations awaiting monumental capstones, realities waiting for the hand of time to draw aside the veil. As the homebound sailor sees ahead the dim outlines of his native hills, where the mother sings and children play, and as with heart outrunning the flashing keel he moves nearer and till the keel grates upon the sand and his feet press the dear reality of home, so the leaders of thought looking forward behold rising like phantoms from the bosom of times great ocean the time forms of liberty and truth.

Every year the keels are grating upon the sand, prophesied realities stand out in their native colors, some mine of wealth is discovered, some benediction blesses the labors of toiling, suffering man.

Taken in its active sense, knowledge may be defined as an advance from the unknown to the known.

What a journey this is! how transcendent the thought, how great how momentous the difficulty. The march of the sacred nation from the land of the pyramids, that of Xenophon and his ten thousand to the Black sea, that of Napoleon and his army over the ice-bound crests of the rugged Alps sink into insignificance beside this march from the misty unknown to the illuminative known. It is a difficult journey, it is a dangerous one, and yet from time immemorial men have made it and future years will but add new recruits to the great army of heroic workers.

The Keplers and Furgesons made this journey, marked the stars, weighed them and analyzed them, the Hugh Millers have gone to the deepest strata of the globe and unearthed its rich mines of wealth, the Buffons and Darwins

have flashed new light upon the mysterious fauna of the earth, while the Franklins and Edisons have drawn from its hiding place that mysterious agent we call electricity and illuminated the world with the glory of their achievements. And what floods of light have been poured upon the medical world by Vesalius, Harvey, Jenner, Simpson, Sims, Agnew and the great hosts who have followed in their wake! They found true knowledge and have left us the rich heritage of their labors But the greatest of all knowledge is knowledge of self, and it is perhaps the most difficult of attainment. There is in the human heart a natural aversion to introspection, a looking within. The eyes do not love to look upon that which is repulsive to the conscience.

The old prophet said the human heart is deceitful and above all things desperately wicked, and this was spoken away back in the early morn of created man. Since then it has become scorched with the hot siroccos of passion, traversed with the *ignes fatui* of hopes, strewn with the bones of noble purposes and high resolves and filled with caverns deep and dark of tangled sin and ruin. Ignorance of self blights progress and defeats success.

Alexander, who knew so much of war, Napoleon, so much of men, Burr, so much of statescraft, and Tom Marshall, so much of the marvelous gifts of speech, all perished because they knew not self. And to day all over our land are men young and old standing among the dead embers of a degraded manhood because they know not self. Self knowledge is self control, self rule, self culture.

The most careless observer of the times cannot fail to note as a prominent and absorbing evil deeply inlaid in the body politic the mad rush for gain, the inordinate desire for wealth. Sweeping all over our country this great wave of avarice has gathered to its seething bosom men of all trades and professions. While this spirit of avarice has concentrated the wealth of the country and congested it, while it has lined our city avenues with brown stone and marble palaces, while it has fostered great corporations which are sending their iron tracks across rivers and hills and valleys and causing them to tremble and throb with the impulse of progress, yet this same spirit is sapping manhood, undermining character and causing men to lose sight of their high ideas.

In this mad rush for the Almighty Dollar there is danger that the Physician may forget that his main object is to minister to suffering humanity rather than to make money, that he is a benefactor rather than a beneficiary, that this is a high and holy calling rather than a mere means of livelihood. The glory of our profession in the past has been that it has had an eye single to the well being of man and to the alleviation of suffering humanity. When we so far forget our high calling that our primal object is to make money, to garner wealth, then may we write Ichobod on our altars for our glory is gone.

"Oh! brother man fold to thy heart thy brother,
Where pity is the peace of God is there,
The noblest worship is to love each other,
Each smile a hymn, each kindly deed a prayer."

The peculiar environments of the physician's professional life may cause him to forget that his patient demands of him not only intellectual strength and manual skill but a warm heart and a sympathetic nature. In his relations with the sick he may feel that all he has to do is to cure the body. He comes into the portals of the sick room stern, cold, phlegmatic; he has no gentleness in his eyes, no sunshine in his face, he affects eccentricities, he appears dogmatic, he despises the frailties of the mind, he looks with contempt upon nervous fear and laughs at prayer. There was a time when such affections were regarded as necessary characteristics of the wise Doctor, but the light of a better experience has dawned and a heart of love and charity must accompany the intellectual mind. Among the harrassing cares and trials, the wearing, tearing responsibilities of a physician's professional life, there is danger of a further contraction of his God-given sphere in forgetting the moral relations he sustains to suffering humanity. We look upward at night when God has lighted the great chandelier of the universe and behold the silver moon, the burning planets, the far off twinkling stars, all bound together by the mysterious influence of that power we call gravitation, so we look ahead over the great seething mass of human lives and behold the tiny threads of influence binding together in one grand whole the great mocrocosm of humanity. Truly did the intellectual scholar of Tarsas say, "No man liveth to himself, no man dieth to himself."

Above Ben Adhem may his tribe increase,
Awake one night from a sweet dream of peace,
And saw, within the moonlight of his room,
Making it light like a lily in bloom,
An angel writing in a book of gold.
Exceeding peace had Ben Adhem bold,
And to the presence in his room he said
What writest thou? The vision raised its head,
And with a look made of all sweet accord,
Answered, "the names of those who love the Lord."
"And is mine one?" said Aben. "Nay, not so,"
Replied the angel. Aben spoke more low,
But cheerily still and said, "I pray thee then
Write me as one who loves his fellowmen."
The angel wrote and vanished. The next night
It came again with a great wakening light
And showed the names whom love of God had blessed,
And lo, Ben Adhem's name led all the rest

Let it be emphasized that the physician in his moral influence is one of the kings among men, whether standing over the weak and crumbling form of human clay over which the angels of life and death are fighting, or in the quietude of his office absorbed in deep thought over great professional questions, let him be ever mindful of the fact that a great part of the medicine he is to administer is found in his own character, that his life is to be the embodiment of his skill.

Then Physician know thyself.

Drink deep draughts at the fountain of knowledge and preserve unsullied forever the high character of our noble profession. Let no maudlin sentiment deter us from the path of duty, let no croaker's groan impede our hastening progress. Be the teacher, the benefactor, the exemplar of mankind.

"For as the light
Not only seems to show but render us
Mutually profitable; so our lives
In acts exemplary, not only win
Ourselves good names, but do to others give
Matter for virtuous deeds by which we live."

ANNUAL ESSAY—THE FAMILY PHYSICIAN IN RELATION TO CERTAIN FEATURES OF THE HEREDITARY FACTOR OF DISEASES.

By J. Howell Way, M.D., Waynesville, N. C.

"If one could set before one's self the greatest and most important problem in all pathology, it would be that which concerns the inheritance of disease; and, as Sir William Gull has rightly stated, the inheritance not of diseases alone, but of that which from generation to generation shall obliterate the disease which one ancestor may have acquired."—Sir James Paget.

While there is among medical men an universal acceptance of the doctrine of the hereditary transmission of certain mental and physical characteristics, which may be physiological or pathological in their nature, it may well be questioned as to whether or not we, as family physicians, give this important subject the thoughtful consideration it well deserves. To one who has even casually studied the subject, there cannot be the least doubt that a very large percentage of the diseases, and which prey upon all civilized people the earth over, are largely the results of the inheritance of predispositions to diseases, or degenerate constitutions called into existence and fostered by the deteriorating influences of civilization.

Again, it is to be remembered that the tendency of modern civilization is toward the cultivation, the extension and accentuation of the hereditary diseases, while its customs hinder the course of nature and seek to render abortive the operation of those great biological laws, which, when in force, lead to the extermination of the abnormal and diseased in every grade of natural life. Where animal life is in most perfect accord with its environment, pathological variations must at times occur, but their survival is of short duration, the law of natural selection remorselessly weeding them out, thus maintaining the higher standards of health which normally exist among primitive peoples. In most striking contrast is this to the results of the usages of civilized life. Here the puny, the diseased, the deformed creatures, that under primitive conditions would be ruthlessly stricken out from the race, are tenderly nurtured in an artificial environment created to render possible the prolongation of vitality, and if (as unfortunately they frequently are) endowed with procreative function, they are permitted to inflict their wretched offspring upon the common stock. Fortunately for the race, our success is and can never be but partial in the war we wage against the inexorable law condemning to extinction the unfit, for at best we only postpone the execution of its sentence, and when, as a result of

our well-meant endeavors, one, two, or possibly more, generations of suffering mortals have fretted and wept out their hour upon life's stage, we are forced sadly aside and nature completes her work. Without questioning the utility or righteousness of such humane endeavors, being civilized beings ourselves and lovers of humanity, and as such constantly in the very van of this work, we can but admire and cherish the noble and unselfish Christian spirit that prompts the actions of civilized man in carefully husbanding the vitality of the weak, while regretting that nature vouchsafes so poor returns for his labors.

But the moral features of this view of the subject, while presenting some most attractive themes for speculative study, concerns us not this evening, and we must pass to the consideration of the practical fact that disease is being handed down from father to son, from mother to daughter, from parent to child, and to ask ourselves, the chosen, trusted guardians of the physical well-being of our race, are we coming up to the full measure of our weighty responsibilities? Are we, in our mission of healing the sick, mindful of how inexorable, how unescapable is the law of hereditary transmission of disease or of liability thereto and do we realize that a proper devotion to the true principles of our science, as well as a conscientious desire to benefit to the fullest possible extent the condition of those who entrust their persons to our care, should impel us to be as mindful of dispensing at the proper time and place this knowledge to our patients as freely as potions or pills?

Despite the much said and written of recent years for the laity upon the subject of the hereditary transmission they have as yet been quite slow to grasp the eternal verities of the subject. To say the least, in the main they quietly ignore the whole matter, giving far less consideration to what may be the physical, the moral or the mental inheritance of their posterity than does the careful propagator to the inherited "points" of his Jersey calves of Collie pups. Whether this wholesale disregard of nature's laws be due to ignorance or indifference on the part of our lay friends and patrons it matters little. So long as this state of affairs exists the family physician has a duty to perform—a duty to his profession, to himself, to his race, to his God! In the majority of the schools of our land where instruction in the elements of physiology is given, the hereditary transmission of disease and of disease tendencies should be clearly taught as being alike applicable to all of nature's creations, from the smallest plant to the strongest oak, from the loathliest amœba to man himself. And the almost certain transmissibility from parent to child of such diseased conditions as insanity, drunkenness, epilepsy or scrofula, should be taught our young men and women as well as a solemn sense of the responsibilities assumed by those who, possessing in their own persons such strains of unfitness, dare continue their kind, thus adding to the world's stock of human misery that which an educated discretion and a rational self-denial could have prevented being called into existence. These truths once pressed home to the

minds and consciences of the masses, would result in a far less number of children being born into the world whose lot is necessarily foredoomed to be one of woe and of ultimate extinction. It may be argued that in the matter of marriage passion and desire reign supreme over reason in the great preponderance of cases and that efforts to control the mating instincts of man are most often futile. Were this true the truth of these things should still be proclaimed. But it is not true, as is evidenced by the fact that there is a constantly increasing number of intelligent men and women who. knowing themselves afflicted with grave hereditary disease tendencies, have and are refraining from marriage and from adding to the species. Again, it is not true, for do we not daily witness the solemnization of marriages where position or wealth, and not blind sentiment alone, are the controlling factors? Verily, cupid is not so blind to the light of reason as he has by the common consent of long usage been portrayed! And when rational people appreciate more fully the principles of heredity, then will the glorious light of reason illuminate recesses in human affairs where now only penetrates the darkness of quick-born passion and blind sentiment.

But leaving aside such extreme developments of disease tendency as should very properly preclude the idea of marriage, there is the far larger class of people who possess such tendencies in so modified a form as to make it probable that by exercising a judicial discrimination in their marital selection a healthy family would result In this type of cases the intelligent family physician may render invaluable service by pointing out the special morbific inclinations of each individual and showing how, by a proper union, these abnormal traits may not appear in offspring, as well as how, by an improper union, they may appear intensified to such degree as to bring only misery and unhappiness to its luckless victims. For such information, when procured at all, I confess to our reproach as the regular medical profession, the men and women of the land are too much dependent upon certain vicious kinds of quack literature instead of receiving instruction in these delicate but highly important matters from the chosen trusted family physician, who should be, of all others, most fitted to give it.

It has been suggested by those high in authority that the strong arm of the law be invoked to sustain individuals suffering from the pronounced types of hereditary disease from the further contamination of the race by the continuation of their kind. At present, so far as our laws are concerned, excepting only idiots or raving maniacs, who are legally incompetent to make contracts, there are none so deformed, crippled or diseased who may not wed and become the parent of miserable offspring. While this unfortunate condition of affairs is far from being what could be desired, it would perhaps be well before appealing to "the powers that be" to control the mating of the race, to exhaust our resources for the educating and upbuilding of a public sentiment which

would, in my opinion, regulate such affairs far more effectually than even the mailed hand of the law.

In this work the family physicians, possessed, as they are, of the family disease history, their physical weaknesses and idiosyncrasies, the special peculiarities of the mental, moral and temperamental bent of each, should naturally lead the way by pointing out how terribly relentless are nature's laws, by showing how tainted constitutions may originate *de novo*, how the individual with slight or no hereditary disease tendency can by vicious habits of life build up the gouty, phthisical, the epileptic or the insane diathesis, and hand it down to his posterity. On the other hand, teaching how individuals possessed in some degree of disease tendencies may, by a careful observance of nature's laws and proper marital selections, render abortive the disease seed, and not only enjoy far more health in their own persons, but hand down an unencumbered physical estate to help bless instead of curse the habitations of earth.

It was Descartes who expressed the opinion "that if it be possible to perfect the human race, it is in medicine that we must seek the means." And while perfection physically will, like perfection morally, probably never exist save in the realms of a happy and benignant idealism, yet the merest tyro in medical affairs will observe that our growth in that direction is infinitely more rapid than ever before in the history of the world. In the past I do not believe the family physicians have fully appreciated the vast extent of possible opportunities that lay in the field of their labors, hence, accepting an inferior position, they failed to benificently influence the characters and lives of the race as their superior knowledge should have entitled them to. We have, both in the study of our science, as in the practice of our art, devoted too much attention to individual organisms and given too little consideration to the relations of that individual organism to other organisms and to the race in general. From the purely scientific standpoint, comparatively speaking, too much time has been devoted to the investigation of the physiological and pathological phenomena of animal life; from the standpoint of art, we have been content to relieve present suffering and prolong human life, while scant attention has been given to the solution of the exact influence upon the physical and moral status of the race of such factors as climate, education, occupation, social habits, social peculiarities and the vast domain of heredity.

The science of medicine, in its restricted sense, is but one part of the greater science of human life which has in view the consideration of all things that pertain to the promotion of the well-being of humanity. The tendency of modern medicine in giving special prominence to preventive medicine and to the newly discovered truths of biology, the magnificent revelations of the microscope and the brilliancy of the antiseptic surgery, are all to be accepted as pertinent indications of the direction in which the best medical thought of this age (and it is the best of all the ages!), is traveling. In perfect sympathy

with this line of thought and action stand the possibilities of the practical application of the principles of heredity at the hands of the family physicians of the land in such way as to confer lasting benefits upon the race and as well to widen and extend the beneficent influence of our loved profession in the affairs of men.

To be enabled to carry out in practice these admonitions and to give our patients and their families the fullest benefit of our scientific knowledge in relation to the influence of heredity, the relations of the profession and its patrons ought to be more closely cemented than at present, and will require, to some extent, a re-arrangement of the relations existing between the family physician and his families. Such changed relations are, I am satisfied. quietly coming about in a natural way. Though it may seem at time to some that the modern brilliancy of specialists has entirely dimmed the more modest glory of the family physician, yet in the end this is not the result. Quite the contrary, I believe, for most of the hard fought hand to-hand conflicts with disease are those of the latter. In the days of anxious care attending the progress of the more acute maladies, it is he who stands by the patient's bedside holding out to him the olive-branch of hope, encouraging his care-worn friends and gracing the difficult and delicate details of the situation as only its master could. While the enormous and rapidly growing growth of modern specialism (and a very necessary portion of our medical system it is, too!) has been encroaching in one direction upon the preserves of the general practitioner, his dominion has *pari passu* widened in others, and the *fin-de-seicle* family physician has exacting duties, weighty responsibilities and glorious opportunities far beyond that of any generation of his predecessors. The position held to-day in all the affairs of the race by the more intelligent and competent of general practitioners is one of constantly increasing influence, and the signs of the times are full of promise that, as civilization advances, this influence will alike do so. As society grows older and more settled, it learns to distinguish the things that confer the greatest and most substantial benefit to mankind Thus that which contributes most to the general welfare will eventually receive the greatest meed of public recognition, and in that grand and glorious civilization that we are now on the borderland of, when the family physicians of the land rise fully to the measure of the obligations resting upon them as the protectors from physical evil of the race and grapple, with the determination to intelligently conquer, with all the remote and hereditary causes of possible future physical imperfection in man, as well as with his present disease, then shall they challenge the admiration and command the veneration of the world as God's highest types of humanity.

THE DIAGNOSIS OF DISEASES OF THE OPTIC NERVE.

By J. M. Hays, M.D., Greensboro, N. C.

In responding to the requisition made upon me by the chairman of our surgical section for a paper on Opthalmology at this meeting, I have deemed it inexpedient to attempt a recapitulation of the recent advance made in that department of science inasmuch as our body is composed almost entirely of general practitioners who for the most part devote but little attention to diseases of of the eye. I have therefore chosen a subject which is of perennial interest to every student of physiology and which appeals to us also as general practitioners of medicine.

I invite you to consider with me the Diagnosis of Diseases of the Optic Nerve; and in order that what follows may be made clear, I would review briefly the anatomy and physiology of the nerves of vision. Each optic nerve contains fibres from both tracts which interlace intricately at the chiasm, the crossing fibres being the most numerous always. This semi-decussation seems to be proportioned in animals to the amount of separation of the fields of vision. In man the fields half overlap and there is half decussation. In those animals in which the fields cannot be made to overlap, as fishes, there is total decussation. The right optic tract in man supplies the right half of each retina and the left optic tract the left half of each retina. The fibres supplying the macula lutea, or central spot of most acute vision come from both tracts.

The old opinion that fibres pass from one optic nerve to the other by the anterior part of the chiasm is no longer received.

Certain fibres of the tractus go to the corpus geniculatum, others to the optic thalamus, and still others to the corpus quadrigemina. These ganglia are known as the primary visual centres Radiating fibres from them pass backward to that portion of the occipital lobe known as the cuneus, and particularly to its outer portion. It was claimed by Charcot and others that certain fibres pass directly from the tractus to the cerebral visual centre without any connection with basal ganglia, but this is doubted by Noyes, Gowers and other recent investigators. The radix descendens is composed of fibres which pass down to the posterior columns of the spinal cord and account in some measure for the frequent implication of visual disturbances and optic atrophy which accompany tabes dorsalis and other spinal affections.

If both optic nerves are destroyed the tractus and basal ganglia concerned in vision become atrophied, but the fibres of Meynert and Gudden remain unaffected. Only the posterior portion of the optic thalamus, that part known as the pulvinar, is involved in the physiology of vision and hence this is the only portion which becomes atrophic when vision is no longer possible. It has

been shown by many examinations that in cases of early and long continued blindness the occipital lobes also undergo atrophy. In the case of a person born with rudimentary eyes, who died at the age of 27, Haab found atrophy of the central visual apparatus, thus confirming the prior teachings of physiologists on this point.

Suppose now that the right optic nerve were divided at a point between the chiasm and the retina. There would follow instant blindness of the right eye, the left remaining unaffected. In lesions of the anterior part of the optic chiasm there is blindness of both retinæ on the inner side, which condition is known as bitemporal hemianopia.

If the lesion were of the left tractus behind the chiasm there would be blindness of the left half of each eye or homonymous hemianopia. The same result would follow a lesion further back, even as far as the cortex. Lesions of the pulvinar produce half-blindness of both eyes on the side corresponding with the lesion.

Hemianopia is also produced by injury of the corpora quadrigemina if of its anterior part, the posterior portions being concerned with hearing and are connected by the fibres of Meynert above referred to. The corpora geniculata externa are also visual ganglia and where one is destroyed hemianopia is the result.

The cuneus has long been recognized as the visual centre of perception for light and color, and has the same function on either side. If one occipital lobe is destroyed homonymous hemianopia results and remains permanent. There is reason to believe, however, that there is a higher visual centre in front of the occipital lobe which can, after injury, compensate on the one side for injury done its fellow.

Recent investigation tends to show that the region immediately underneath the cuneus is also closely associated with the sense of vision. Henschen reports a case in which there was complete hemianopia and on post mortem there was nothing to account for it except a lesion of the calcarine fissue. In a case reported by Dr. Hun, of Albany, there was loss of sight of each eye on the left side but involving the upper quadrant only.

These, and similar cases, lead Dr. Noyes to believe that the upper lip of the calcarine fissue answers to the upper side of the retina, and the lower lip to the lower side of the retina.

The centre for visual memories is not precisely defined, but we know that lesions in the outer part of the occipital lobes, in the region of the angular and supra marginal gyri give rise to that condition known as psyche—or mind—blindness, or speaking technically, apraxia. This is a condition in which the patient sees but does not associate with an object its properties or uses. A pen does not bring up the idea of writing, nor a knife that of cutting.

It should be remarked that psychic blindness is a symptom which belongs peculiarly to the left hemisphere, except in left-handed subjects, when this order is reversed, being thus analogous to the aphasia which follows lesions of the third left frontal convolution known as the speech centre of Broca.

The limits of my paper do not admit of a further excursion into this most beautiful field of physiological psychology.

The optic nerve passes forward from the chiasm through the optic foramen into the orbit. It is subdivided by connective tissue into about 800 fasciculi which, after perforating the sclerotic and choroid at the lamina cribrosa where the sheath and connective tissue are lost, enters the globe as an aggregation of simple axis cylinders. The number of these has been estimated by various writers at from a half to one million. An interesting fact is that the region of the disk and yellow spot, which corresponds to the centre of the field of vision, is supplied by a certain and well known part of the nerve known as the papillo-mascular bundle. The fibres occupy the infero-temporal side of the nerve. We shall have further occasion to speak of this bundle under retro vulvar neuritis.

The optic nerve is covered by a sheath of dura and a sheath of pia which become lost in the sclerotic at the lamina cribrosa. Between these sheaths and continuous with the arachnoid is a space occupied by delicate connective tissue and lymph. This intra-vaginal space passes somewhat into the sclera, reaching as far as the lamina cribrosa. The central artery of the nerve and retina passes downward through this space after having branched off from the opthalmic, and perforates the nerve about one-half inch behind the eye. The accompanying vein enters into the superior opthalmic or directly into the cavernous sinus. The nerve terminates in the eye in an optic papilla which is slightly higher around its edge than the surrounding retina and somewhat cupped in the centre. This is not invariable, however, and deviations from the rule must not be considered pathological. The same must be said in regard to the color of the optic disc , for while in the greater number of cases this is of a pinkish hue, rather more colored on the nasal side and gradually becoming white in the centre, there are wide variations in hue which are not indicative of disease. The fundus is always darker in brunettes than in blondes. In the negro it is especially deep in hue, while in albinos the choroid is almost free from pigment and the fundus is nearly white.

The disc is sometimes oval with its long axis vertical as seen with the opthalmoscope, or in other cases may appear oval in any direction in consequence of astigmatism. The edge of the disc is well defined and a deposit of black pigment around its border is not unusual.

The principal intra-ocular arteries and veins have received distinctive names, as the arteria nasalis superior and inferior, and arteria temporalis superior and inferior with a like nomenclature for the veins; but as there is so little uniformity

about this arrangement it seems to me an unnecessary refinement. The region of the yellow spot, to the upper and outer side of the disc, is free from large vessels, but intimately supplied with small ones up to the fovea centralis. The intra-ocular veins are always rather larger and darker than the corresponding arteries.

It will thus be seen that visual impressions made upon the retina are conveyed to the higher intellectual centres by a system of telegraph wires, so to speak, which, passing back for a certain distance as a compact cable, soon decussate, break up into sub-divisions, become lost to sight as visual conductors in numerous way-stations though still retaining their functions as such, finally terminating in the sensorium, where nervous impulses are transformed into sentient ideas.

Let the integrity of this wonderful system become impaired at any point, whether in the transmitter, the receiver or along the line, and it can no longer perform its delicate function; the visual field will be dimmed or totally obscured in spots or there may be entire blindness in one or both eyes.

Inflammation of the optic nerve, known also as optic neuritis, is distinguished clinically as *papillitis*, in which the papilla or ocular head of the nerve is chiefly affected; *neuritis descendens* which, as its name implies, is inflammation involving primarily the posterior or intra-cranial portion of the nerve; and *retro-bulbar neuritis* which always means inflammation of the nerve between the globe and chiasm. Some authors make a special classification of those cases involving the external fibres of the nerve and describe them as *perineuritis*. It should be borne in mind, however, that papillitis, neuritis descendens and perineuritis are all closely allied pathologically, the difference being rather of degree and locality of the inflammation; whereas that very interesting affection known as retro-bulbar neuritis has, in the majority of instances a pathology which is peculiarly its own.

Papillitis in its milder forms is a serous inflammation with enlarged veins and swollen disc. If the disease progresses the papilla becomes greatly swollen and its transparency lost, we then have the condition known as choked disc, with the surrounding tissue ædematous and thickly supplied with small vessels, the larger arteries and veins becoming turgid and tortuous and often pulsating visibly. In the majority of instances of papillitis both optic nerves are involved, and especially is this true if the cause is intra-cranial. Instances are not wanting, however, where cerebral tumors and other intra-cranial lesions have produced one-sided neuritis, in which cases the tumor is generally on the side opposite to the papillitis. The most common seat of injury resulting in papillitis is, however, anterior to the chiasm and often in the orbit or optic foramen. In such instances the third, fourth or sixth nerves are also involved as evidenced by paresis of the ocular muscles.

In neuritis descendens the nerve is swollen but there is absence of serous effusion which we have seen in typical papillitis. It is, however, deeply red, the arteries being small while the veins are enlarged and very tortuous. The outlines of the disc are entirely annihilated, while the optic nerve is yellow and traversed by numerous small vessels. In perineuritis there is moderate swelling and redness of the disc along its outer edge with a cup-shaped centre. This form is not infrequent as an accompaniment of meningitis.

Inflammation of the nerve may come on slowly or occasionally almost suddenly. When of orbital origin the onset is usually more rapid than when the cause is intra cranial Usually several days or weeks are required for neuritis to reach its height, while months may be counted on for its disappearance. Cases are reported where the nerve has remained inflamed for years Recovery may be complete in the end or there may be partial or comple atrophy of the nerve fibres involved. Noyes says that the atrophy following neuritis if observed for a sufficient length of time becomes identical in appearance with primary atrophy of the nerve. We know, however, that for months or even years after neutritis we can still see its characteristic phenomena, and it must require a long time for the edge of the disc to become clearly defined.

Optic neuritis presents no external appearances and the optic nerve being a nerve of special sense and capable of transmitting visual impressions only when irritated, neuritis is unattended with pain. The pupil remains unaffected except in cases of atrophy, when it becomes dilated and fixed. Vision may remain normal throughout an attack of neuritis or there may be peripheral contraction of the field or sector-like defects of many forms, or hemianopia. Color perception may not be interferred with, but is usually proportioned to the central amblyopia, although there have been observed instances of central color scotomata with unimpaired peripheral perception. When color sense does fail the loss is for green, red and blue in the order named. If color sense gradually fail, pari-passu with a steady contraction of the visual field we may expect final atrophy and loss of sight. In atrophy there may be a simple shrinking up of the nerve tissue and blood vessels or there may be an increase of connective tissue between the fascicule of nerve fibres and within the papilla. In the majority of instances papillitis is a symptom of cerebral tumors, either neoplastic, cystic or tuberculous. Other frequent causes are injuries of the skull and meningitis either simple or tuberculous. In almost all such cases both eyes are affected, but one much earlier than the other. Mono-lateral papillitis as remarked above is usually due to orbital disease or trauma. Papillitis affords but little aid in diagnosticating the locality of brain affections, nor can we determine the character or size of the offending agent. A cerebellar tumor no larger than a cherry has produced total blindness, while large neoplasms in the region of the chiasm have given rise to no visual disturbances.

Descending neuritis occurs with cerebral tumors, but not as frequently as

papillitis. Other frequent causes of neuritis are embolism, softening, abscesses and miningitis. The cause is frequently found to be in the orbit and may then be erysipelas, injuries, orbital tumors, periostitis, etc. Empyema of the frontal sinus is given as a cause by Noyes, and Vossius has seen it produced by dental caries.

A not unfrequent form of optic neuritis is the idiopathic variety and Hirschberg thinks it much more common than has usually been supposed. Syphilitic gummata of the brain also give origin to the affection, as do also toxic agents such as lead, albuminuria and glycosuria. The same is true of many specific fevers, such as typhus, typhoid, scarlatina, pneumonia, etc. According to Herter about 6 per cent of cases of multiple sclerosis produce it. It has also been caused by anæmia and chlorosis, menstrual disorders and uterine disease. Sunstroke has also caused it, and I have recently treated a case in the person of a fireman who became exhausted while fighting a big fire last July and who had to be carried home by his comrades in a condition of prostration thereafter. Myelitis has also within the last few years become a recognized cause of optic neuritis. Just how inflammation of the spinal cord can produce blindness is not known and various theories have been advanced to account for it, all of which, however, are but surmises. The connection by the radix descendens or median tract may account for it, or, as many suppose, the influence may be solely through the sympathetic system.

Optic neuritis of central origin is caused by influences which produce either irritation or compression of the brain. These conditions are of course not always easily separated, but, generally speaking, "the symptoms of irritation are usually associated with hyperemia and consist in headache, vertigo, vomiting, photophobia, mental irritability, insomnia, peculiar feelings of fullness and pressure about the head, noises in the ears or in the head, tenderness about the scalp, and, in severe cases, convulsive symptoms and delirium. The symptoms of brain compression are headache, vomiting, mental hebetude, or dullness, perhaps some form of paralysis, and eventually coma." (Noyes.)

All the knowledge which we possess in regard to cerebral localization is brought into play when we are called upon to locate lesions giving rise to optic neuritis. We should inquire into paralysis, muscular contractions, convulsions, or perversion of cerebral functions. The knowledge which we possess of this branch of science is frequently insufficient, however, to guide us to conclusions of absolute accuracy. This is a new field of investigation and data bearing upon it should be accurately noted by us and given to the profession.

Retro bulbar neuritis, as before stated, affects only that portion of the nerve anterior to the optic chiasm. It is occasionally caused by colds and rheumatism and in such cases there is doubtless pressure in the optic canal producing a condition analogous to that present in the stylo mastoid in Bell's palsy. In such cases the affection has a sudden onset and the peripheral fibres are frequently the ones affected, thus giving a circumscribed visual field.

LaGrippe, which is now a recognized factor in almost every disease, makes no exception to this one and has been frequently the sole cause of optic neuritis, especially of the retro-bulbar variety.

The typical retro-bulbar neuritis is, however, usually toxic, being most frequently produced by alcohol and tobacco, according to all authors to whose writings I have had access, except Gowers, who expresses serious doubt as to the influence of alcohol in its production. Noyes states that absolute blindness rarely results from alcoholism. In Germany it would seem that alcoholic amblyopia is more common than that from tobacco, while according to Hutchinson the reverse is true in England.

Retro-bulbar neuritis is called also axial neuritis because in almost all cases the central fibres of the papilla are the ones affected. The papilla may at first present no symptoms at all commensurate with the subjective loss of sight even in cases which finally terminate in total atrophy. Uhthoff found among 1,000 alcoholic patients who were detained in a hospital for treatment 17 per cent. presenting affections of the nerve and retina.

In 63 per cent. of the amblyotic cases there was atrophic pallor of the temporal side of the nerve, corresponding with the distribution of the papillo-macular bundle spoken of above.

Amblyopia from alcohol or tobacco is very gradual in its onset, requiring many months, according to Tucks, to render the patient unable to read fine print. Long indulgence in the toxic agent is necessary to produce neuritis. Color-blindness for green and red and sometimes blue in the central field is one of the earliest and chief symptoms of the affection, while absolute visual scotomata are not infrequent. The periphery is not affected. Both eyes may be involved, but one is usually affected earlier and more than the other.

Total blindness is not common from retro-bulbar neuritis but Wells mentions it as being of occasional occurrence. The other symptoms usually present in toxic retro-bulbar neuritis are weak heart, enfeeblement of the ocular muscles, and nervous irritability. Chronic conjunctivitis was present in one of my cases of double retro-bulbar neuritis due to tobacco toxæmia, and it is said to be a not uncommon complication. If the toxic agent is discontinued the morbid process ceases. This a point of value in diagnosis as well as in treatment.

The primary atrophy of the optic nerve is meant that form which is not proceeded by neuritis. The course of primary atrophy is always slow and painless. Opthalmoscopically we note a blanched condition of the disc, the capillaries being absent and the arteries and veins much reduced in size, or in the case of the arteries even nothing but threads of connective tissue. The disc may be a pure dead white or of a blueish gray. The latter is the characteristic form found in atrophy from diseases of the spinal cord. If we bear in mind that in some cases there is an increase in the connective tissue and in others a mere shrinking of all the nerve constituents, we will understand the reason for

this varied appearance of the disc. Among the most common causes of primary atrophy the following are prominent in about the order named: diseases of the spinal cord, as tabes, myelitis, disseminated, sclerosis, railway spine, etc., diseases of the brain, including all conditions giving rise to neuritis, also disseminated sclerosis and general paralysis of the insane, the latter, however, frequently presenting a mild degree of inflammation. Cerebral hemorrhage and embolism are sometimes followed by primary as well as consecutive atrophy. Finally atrophy occasionally occurs as an idiopathic affection without any assignable cause.

In tabetic atrophy we would also have, even in the early stages, the characteristic absence of the patella reflex, the Argyll-Robertson pupil (that is, failure of response to light while responding to convergence and accommodation) the Romberg symptoms of ataxia, and such as inability to stand with closed eyes, etc.

In the earlier stages of myelitis we would find increased knee reflex with spastic symptoms, and perhaps fever; while in the more advanced forms with organic changes the symptoms approach those of tabes.

In disseminated slerosis there is usually loss of power in the extremities with marked diminution of all the vital forces. Also intentional tremor in the majority of cases, this being a condition in which tremor becomes manifest or greatly exaggerated when an effort is made to accomplish a definite muscular movement; for instance the patient may be able to grasp a glass of water but is sure to spill it in carrying it to the lips. In general paralysis of the insane the history and accompanying symptoms leave no question as to diagnosis.

In conclusion let me say that as sight is the most precious of all physical functions it ought to be the most sedulously guarded. Death itself is often preferable to hopeless blindness, and no blindness is more hopeless than that due to optic nerve atrophy. We should be constantly on the alert for the first evidences of inflammatory or degenerative processes involving this path to the mind.

The expectant plan of treating eye affections, which is but another name for trusting to luck, too often means a life of woe to the confiding patient. There is no task more painful to the oculist to be called upon to pronounce the sentence, which human skill can no longer commute, of "hopelessly blind."

REPORT ON THERAPEUTICS AND PRACTICE OF MEDICINE.

By E. C. Laird, M.D., Haw River, N. C.

Mr. President and Gentlemen of the Medical Society of the State of North Carolina:

I have shown my appreciation of the honor and responsibility conferred upon me, as chairman of this section, by asking the assistance of such collaborators as Drs. Hodges, Hill and Cobb, who will report to you on Electro Therapeutics, Medicinal Plants of our own State and the Modern Treatment of the Insane.

In presenting for your consideration the general advances of the year in the department of Therapeutics and Practice of Medicine, I have endeavored to state facts as clearly and concisely as possible referring you to the various journals of the day for details.

PULMONARY TUBERCULOSIS.

The Year Book of Treatment.

In this section there is to be recognized a gradually increasing tendency to distrust specific theories of treatment—a natural reaction from the failure of tuberculin.

It will be seen, however, that evidence is again adduced in support of the utility of this substance in Pulmonary Phthisis, but after the undoubted harm resulting from its former use, it is probable that the majority of observers will await further proof of its value.

Creasote and Guaiacol hold a foremost place, but the testimony in their favor is by no means universal, and most authorities are inclined to the view that they do not exercise any truly specific influence upon tuberculosis.

The surgical treatment of Pulmonary Phthisis by resection of lung is a new departure that will be watched with much interest.

Medical Record.

The latest annual report of the Adirondac Sanitarium, by Dr. Trudeau, contains this announcement: "The medical report shows the usual good results obtainable from a change of climate, and an open air life, in combating consumption, and one of its most interesting features relates to those patients who have received injections of modified tuberculin.

Although this form of treatment has been almost universally condemned as useless and dangerous, the results obtained during the past two years at the sanitarium by the careful use of a modified tuberculin when applied in conjunction with the usual climatic and open air methods, have been on the whole

encouraging, and indicate that such specific medication may with care be safely administered, and is probably to have a place in the future treatment of incipient consumption."

PNEUMONIA.

The Year Book of Treatment.

The treatment of this condition has received considerable attention. It will be observed that while there is a general consensus of opinion against the routine use of antipyretic drugs in pneumonia, authorities vary much as to the value of the external application of cold, especially in the form of the ice bag.

Contradictory opinions are also expressed upon various other points, such as the use of alcohol, digitalis, and purgatives; in fact such divergencies as might be expected in the case of a disease which in a large proportion of instances has a natural tendency to a favorable termination, after an acute stage of somewhat uncertain length.

DISEASES OF THE KIDNEYS.

The Year Book of Treatment.

Although the contributions to renal and urinary therapeutics this year are scanty, still two points of interest have been touched upon—one referring to the experimental researches of Minkowski on the effect of pancreas removal in causing diabetes mellitus; the other questioning the advisability of the so-called "milk diet" in albuminuria, especially in the chronic form.

With regard to diabetes, clinical observers discriminate between two forms, one running a rapid course, and the other more protracted. The first generally found in patients of a neurotic type; the milder associated with some constitutional taint, such as gout, rheumatism, etc.

More recently these two forms have been considered as consisting of an alimentary diabetes, which could be controlled by diet, and either run a mild course throughout, or else this course being lost, the disorder may pass into the general form, in which either from the outset, or after a continuance for a while of the alimentary form, a restricted diet fails to remove entirely the sugar from the urine, this latter form which in its inseption is common in cases of neurogenic origin, is especially characteristic of pancreatic diabetes.

The latest researches of Minkowski seems to have established this clinical distinction on an experimental basis. As he shows very conclusively that there is a marked difference in diabetes induced by phloridzin, and that brought about by removal of the pancreas; the one being alimentary in its character, the other brought about by destruction of the pancreatic gland, causing some profound metabolic defect.

The other interesting point to notice is the discussion that has arisen with regard to the question of diet in Bright's disease, which we have no doubt will have the effect of producing considerable modification in the indiscriminate

and routine prescribing of the so-called "milk diet" in all cases of albuminuria. The latest published statements by such nephrologists as Saundby and Rolfe, states that absolute "milk diet" is not only unnecessary and distasteful but positively harmful.

And the fact is emphasized that it is more important to regulate the quantity of the food than to rigidly supervise the quality. The value of the "milk diet" is acknowledged in the acute and sub acute forms, but in the chronic form of Bright's disease we have other factors to deal with, in degenerated vessels. a failing heart, and the affects of long standing malnutrition. Here a more generous diet is called for, but in administering it we must not forget the danger to the patient of cerebral hemorrhages, in increasing the vascular tension by a meat diet.

The safest rule in these cases will be found in a close and frequent examination of the heart and pulse which will furnish a more satisfactory guide to the requirements of a patient than can be learned from estimations of albumen or urea.

So long as the pulse has a high tension, and the left ventricle a strong impulse, a light diet should be insisted on On the other hand when the pulse is failing and the heart muscle degenerating, more liberal diet is called for.

During the last season (as Resident Physician at the Springs) your reporter used the Buffalo Lithia Waters Nos. 1 and 2 extensively in almost every form and stage of acute and chronic Bright's diseases of the kidneys and diabetes with most gratifying results. This action of these waters cannot be attributed to the effect of the large quantity of pure water passed through the system, as suggested by some writers, for in many instances the beneficial effects produced by one spring would be greatly enhanced by change to the other, and vice versa, showing some special curative action of each water in the individual case.

This I attribute to two well established effects of these waters, first their powerful solvent and eliminating action on uric acid, which is considered by Tyson and others the principal excitant of Bright's disease, and secondly to their nerve tonic properties, thus embracing the wide range of adaptability to the cause of trouble, whether commencing with "*mind strain*" from overwork, worry, or sorrow, as suggested by Drs. Thom, Howard and Flint in Virginia Medical Monthly, May, 1894, or to one or more of the diatheses, either gouty, rheumatic phosphatic, oxalic, lithaemic or diabetic.

TREATMENT OF TYPHOID FEVER.

North Carolina Medical Journal.

The bacillus being recognized as the cause of typhoid fever, our attention is directed chiefly to the remedies possessing antiseptic properties, the most important of which are calomel, turpentine, chlorine water, iodine, carbolic acid, salol, sulpho carbolate of zinc and nitrate of silver.

Dr. Thos. Wright reports 48 cases treated by the general and local anti septics, without a death, and in only one was there hemorrhage from the bowels. Duration of disease, from two to three weeks. Treatment—mercurial purge at onset, followed at once by salol, creasote and quinine, in combination every four or five hours. Where fever was high phenacetine in combination with above antiseptics—otherwise external applications of cold, such as ice bag, sponging, etc. In those cases associated with malaria bi-chloride of mercury was given, with bitter tonics. chlorine water, turpentine and acidulated drinks were also used.

REPORT OF THE SECRETARY OF THE NORTH CAROLINA BOARD OF HEALTH.

By Richard H. Lewis, M.D., Raleigh, N. C.

When your Secretary made his last annual report the sanitary sky to the eastward was overcast with the dark and lurid clouds of cholera. There was in the minds of people at large to some extent, but more especially of those whose duty it was to stand as sentries upon the watch towers, a feeling of apprehension lest these threatening clouds should reach our shores and deluge us with the dreaded pestilence.

Later yellow fever appeared at Brunswick, Ga , almost at our doors, and our health officers on our seaboard, particularly at our port of Wilmington, had their anxieties greatly increased. Still later small pox began to spread over the country and is not yet, we regret to admit, stamped out.

Notwithstanding these valid grounds for uneasiness our fears have not been realized. We have to felicitate ourselves and the people of our State and generally of our whole country upon their escape. And in doing so we should make our acknowledgement to the United States Marine Hospital Service for its excellent management in keeping cholera (except one case at Jersey City) out of our country and in practically bottling up the yellow fever at and near Brunswick.

In making this report your Secretary does not consider it necessary to read all the data bearing upon what has been done but will be more general in his method and refer those interested to the Archives of the Board where they can be found and consulted.

On June 20th a circular letter was sent to the mayors of all county seats and all other towns and cities of 500 or more inhabitants, reminding them of the sanitary suggestions previously made to them and referred to in my last report, enclosing copies of a Wake health ordinance, death certificate, burial permit, birth certificate and other sanitary blanks, and begging them to make necessary provision for the protection of the lives and health of their people and for securing more reliable vital statistics.

An editorial on this subject, giving this letter and also another addressed to the physicians residing in the above noted towns and cities urging them to interest themselves in this matter and do all in their power to induce the municipal authorities to take action--chiefly by organizing local boards of health—was published in the June Bulletin. While the result was not at all flattering some of the seed fell on good ground. Salisbury and Oxford adopted the model ordinance—exactly as recommended and other towns we have reason to believe were induced by it to improve their methods—particularly this goodly town of Greensboro.

On July 9th I received a letter from Dr. Leinster Duffy, Superintendent of Health of Craven county, informing me that an epidemic of typhoid fever of an extremely maglignant type was prevailing in the the neighborhood of Core Creek and asking if any arrangement existed for the special investigation of such cases. His letter was promptly referred to the President of the Board, who appointed Dr. W. H. Harrell, a member of the Board, to visit Core Creek and investigate the matter. Dr. Harrell responded and made the following report:

Dr. Richard H. Lewis, Secretary of the North Carolina State Board of Health, Raleigh, N. C.:

DEAR SIR—By order of the President I visited Core Creek, Craven county, as the representative of the State Board of Health, and make the following as my report: In company with Dr. Leinster Duffy, County Superintendent of Health for Craven county, I examined the premises of a number of householders where typhoid fever existed in an epidemic form. There have been 36 cases and 13 deaths out of a population of about 150. I found that no regard whatever had been paid to sanitation, notwithstanding the repeated warnings and instructions from the attending physicians. Discharges from the bowels had been emptied in the yards near the wells; whole families had used the same drinking utensils that the patient used, and no effort had been made to clean the yards, protect the water supply or to isolate the patient. Patient, family and visitors drank out of the same dipper, soiled clothes were allowed to stay in the room for a considerable time and then be washed at the well. Carelessness and negligence of the grossest and most reprehensible form has produced in a small village a severe and fatal epidemic. I suggested that the wells be not used at all; that driven pumps be substituted; that the drinking water be filtered or boiled, or both; that the premises be thoroughly cleaned, limed and drained; that all bedding be aired and disinfected, and that all intestinal discharges be sterilized and buried deeply at a distance from all wells and houses. I am indebted to Drs. Duffy and Whitaker, of Trenton, for assistance in the investigation, and for their personal attendance. There can be no blame attached to the attending physicians in the matter, as they had repeatedly insisted that all the above suggestions be carried out. They did not have the co-operation of the people, therefore could do nothing. I was assured by the best people of the community that all means suggested above would be used to stop the spread of the disease so far as it was in their power.

Yours, etc.,

W. H. HARRELL.

In consequence of this severe epidemic at Core Creeak and the rather widespread prevalence of the disease it was thought well to call attention in the July Bulletin to the great importance of every physician's carrying out or seeing carried out the recommendations made in section 21 of the law in regard to the disinfection of the dejecta of tophoid fever before being emptied.

On July 14th a telegram was received from Surgeon General Wyman, M. H. S., asking for the facts in regard to the report of cholera in Northampton county that had appeared in the letter of a newspaper correspondent. During the day similar inquiries were made of the Secretary by parties as far distant as Ohio.

Having heard nothing from Dr. H. W. Lewis, the Superintendent of Health of Northampton county, I felt satisfied that the report was a mere rumor. But to settle the matter I immediately wired Dr. Lewis for the truth. I received

the following reply: "No cholera or disease resembling it here. I reported some dysentery in the county and a few have died in Rich Square and Gaston townships. I have not seen a fatal case in this community. H. W. Lewis."

A letter from Mayor Ellis, of Newbern, asking my opinion and the views of the Board of Health in regard to privy sinks, was received July 1st. A reply was sent expressing the opinion that looked at from a sanitary point of view they were utter abominations and should be condemned and abated at the earliest possible moment.

On July 15th a communication was received from Dr. Julian M. Baker, of Tarboro, announcing the sudden appearance in the town of 8 or 10 cases of typhoid fever without any manifest cause and requesting that a member of the State Board of Health be sent there to investigate the matter. In accordance therewith Dr. Hodges, not being able to go on account of sickness in his family, the writer was sent by the President.

Upon arrival at Tarboro a conference was held with the Mayor and the local profession. A statement of the facts and an expression of opinion was asked of each one. The facts were that twenty-seven cases had occurred up to that time, the first about a month before. That in some instances the fever was not typical. That it was not particularly malignant although five had died. That the drinking water was obtained from wells as a rule while those using cistern water did not restrict themselves to that. That the main street of the town was sprinkled with water pumped into mains from Hendrix creek and that the same was used by some drug stores for washing soda water glasses, etc. That a case of typhoid fever had occurred on the water shed of said creek during the preceding winter. That in nearly every instance typhoid fever had occurred on the same lot within a few years previous and that the undisinfected dejections had been thrown out upon the surface of the ground or emptied into the ordinary privy—which is the same thing. That about the time of the beginning of the epidemic the water in the wells was rather low from drought.

Samples of the water from Hendrix creek and from the two wells most in evidence were sent to the State Experiment Station for chemical analysis and Surgeon General Wyman, of the Marine Hospital Service, having at my request promised to have bacteriological tests made, to Washington also. Unfortunately the threatenings of cholera at the port of New York and the yellow fever at Brunswick so occupied the department, taking the bacteriologist of the service, Dr. Kinyoun, out of his laboratory, among other things, that the latter examinations could not be made. The water, however, was promptly analyzed chemically, and while the water from the creek, which no one drank, proved to be objectionable, that from the wells was better and fairly good drinking water. So that no manifest explanation of the prevalence of the fever could be obtained. The theory most plausible to my mind, after carefully considering the facts, was that the town was suffering the consequences

of former sanitary sins—that the undisinfected discharges of former cases had poisoned the soil; that certain subtle conditions favorable to the development of the germs of the disease were apparently present, judging from its unusual prevalence in very numerous localities; that the bacilli had reached the wells and being relatively more abundant on account of the low water had produced their legitimate results.

In the way of recommendations it was suggested that the wells should all be thoroughly cleaned out and that the water drank should be first boiled. Also that the town should be thoroughly cleaned. And finally the attention of the physicians was called to section 21 of the act relating to the Board of Health, requiring the disinfection of all typhoid fever dejecta before being emptied and the importance of its observance emphasized and illustrated by the prevailing condition of affairs. I was informed by Dr. Williams, the Superintendent of Health, that the suggestions made were carried out and that no more new cases occurred—whether *post hoc* or *propter hoc* we will not say.

COUNTY BOARDS OF HEALTH.

One of the wisest provisions of our new law is that requiring the Secretary of the State Board to notify by mail all persons eligible to membership in the county boards of health of the time and place of meeting for the election of County Superintendent, In the act of 1885 no provision was made for calling these meetings, and it being the business of no one in particular it was frequently not done. In consequence the meetings in the counties that had organized auxiliary boards were irregular as to time and sparsely attended as to members, while in counties having no boards it was very difficult to start them. In performance of the duty laid on me by section 8, I sent notices respectively to those eligible to membership other than members of the medical profession in the sixty-seven counties having boards of health and to those in the twenty-nine counties having no boards. * * * In the notice to physicians I thought it best not to confine myself to a bare notification of time and place but to take advantage of the opportunity afforded to urge upon them the importance in the one case of attending the meeting of their county board and in the other of assembling and organizing a board in order that they might exercise the privilege conferred upon them by the State of selecting their health officer.

The result was very gratifying. The attendance in the counties already having boards was in nearly instance much larger and more interest was shown than ever before. In the other counties sixteen new boards were organized and superintendents of health elected, making the total number of superintendents 83, as against 67 before. Although much encouraged your Secretary was not satisfied and so sent on September 20th a letter to the Chairman of the Board of Commissioners of each county that had failed to comply with the law urging them to elect a Superintendent of Health.

As a result of this five more superintendents were elected by the Boards of Commissioners, leaving still seven counties with no legal health officer. A third letter was sent to each of these boards and as a result two more superintendents were elected so that at present we have a total of 91 counties out of 96 with an official representing the sanitary interests of the people. The counties still unprovided for in this respect are Camden, Currituck, Hyde, Pamlico and Washington. It is earnestly hoped that ere another year rolls around they will take their proper place in the health procession.

YELLOW FEVER.

In the *Wilmington Messenger* of September 6th there appeared a communication signed J. H. Sykes, dated September 5th, stating that he had been informed by a gentleman from French's Creek, Bladen county, that a woman coming from Brunswick, Ga., between two and three weeks previously had just died, after an illness of 48 hours, of what was pronounced by Dr. Lucas, of our Board, the attending physician, yellow fever. On the same day telegrams were received from Mr. Harris, Acting Mayor of Wilmington, asking for information, and for Dr. Thomas, of our Board, giving the substance of the communication and asking if he should investigate the matter. In view of his proximity to Bladen county and the difficulty of reaching Dr. Lucas by wire he was requested to do so. With characteristic promptness and energy he managed the investgation and the next day received a statement from Dr. Lucas to the effect that the person referred to "did not die of yellow fever." After a sickness of nearly two weeks "she died with typhoid malarial fever. * * * It is currently reported that she had yellow fever but it is false." So the threatened panic was at once nipped in the bud.

On September 24th I received a letter from Supervising Surgeon General Wyman, of the Marine Hospital Service, enclosing "a newspaper clipping relative to an alleged occurrence of yellow fever aboard a vessel from Wilmington, N. C." The letter was referred to Dr. Geo. G. Thomas, Secretary Quarantine Board, Port of Wilmington, as well as a member of our State Board of Health, for answer. From his reply now on file in the Secretary's office it appears that the disease alluded to was evidently malarial.

On the same day a written request was received from Dr. J. W. McGee, Physician to the Penitentiary, requesting me to officially visit the penitentiary and aid the authorities in investigating the cause of an outbreak of fever, malarial and typhoid, made up of 41 and 21 cases respectively, inside the prison. A careful investigation explained satisfactorily the malarial fever as due to digging from a bottom and working in clay for making bricks, but the cause of the typhoid was not satisfactorily arrived at. All but five of the typhoid cases worked in the same bottom and drank from a spring and may have been poisoned there. The first inquiry was of course as to the prison drinking water, but there was not the slightest superficial evidence of its pos-

sible contamination and it was not feasible to have a bacteriological examination made at the time. It could hardly have been that for the reason that all the prisoners were served with exactly the same water, and while most of the fever cases had been at work outside, there were five who had not gone beyond the walls, four of which five worked in the machine shop. There were no unsanitary conditions about this shop and we had to give it up. There were two deaths.

In compliance with the duty imposed upon the Secretary in section 16 of the Health Law in connection with the transportation of the bodies of persons who had died from contagious diseases enumerated in section 9 of the same act, I prepared and distributed to all of the common carriers in the State, according to a list kindly furnished by the State Railroad Commission, a circular containing

DIRECTIONS FOR DISINFECTING AND ENCASING DEAD BODIES, ETC.

The railroads seemed to approve the regulation. Col. W. A. Turk, G. P. A., R. & D. R. R., sent copies of the forms he was having prepared for any correction that they might be sure to conform to the law.

On November 1st I received a letter from Dr. R. L. Payne, Jr., Superintendent of Health of Davidson county, asking "the usual interpretation of certain points." Those points being: 1. Should the Superintendendent be paid for his services in quarantining and disinfecting by the householder, or by the public authorities. 2. If the latter, the patient being in a municipal corporation, whether by the said municipality or by the county. I replied to the effect that the expense of quarantine and disinfection laid upon the householder by the law did not mean the pay of the health officer, and that unless the municipality for its better protection had created its own special board of health with its own health officer to perform for itself the duties of the county superintendent it was clearly the duty of the county. Submitting Dr. Payne's letter and my reply to Attorney General Osborne, he gave me the following opinion:

RALEIGH, N. C,, November 11th, 2894.

Dr. R. H. Lewis, Secretary North Carolina Board of Health, Raleigh:

DEAR SIR—In reply to your question concerning the payment for the services of the County Superintendents of Health, I take great pleasure in stating that I agree with you entirely in your construction of the statutes on that subject passed by the last Legislature. I understand your opinion to be that the county, and county alone, pays for the services of the County Superintendent of Health, and not the householder nor the town, when the services are performed in a town. As I stated before, I agree with you, and the construction seems to me too clear for debate. Yours respectfully,

F. I. OSBORNE, *Attorney General.*

The County Commissioners, after reading this opinion, said it was not worth any more than the opinion of any other lawyer, and that they would rely upon that of their own attorney, which was that the Superintendent should be paid by the householder. Dr. Payne, however, took a firm stand, declining to make

any agreement with them as to definite salary and proposing by charging full fees for the regular duties of county physician and for services in the matter of quarantine and disinfection to paupers to obtain a fair remuneration for his work, in consequence of which the Commissioners agreed to pay him a reasonable salary.

Dr. J. A. Hodges, owing to removal from the State, resigned from the Board, thereby depriving us of an active and interested member. After consultation with the President it was thought best in order to avoid the expense of a special meeting for the purpose to have the members signify their choice of his sucsor by letter to the Secretary. That course was taken and Dr. John Whitehead, of Salisbury, was unanimously elected to fill the vacancy. The letters are on file in the office of the Board.

Dr. J. T. Smith, Superintendent of Health of Perquimans county, one of the leading physicians of his county and a worthy Christian gentleman, passed away in October, having been stricken with fatal illness very soon after his election on the first Monday in September. After waiting a reasonable time and hearing nothing of the election or appointment of any one to fill the vacancy I addressed a circular letter to the physicians of the county and a similar notice to the non-professional members of the County Board, notifying them to attend a meeting for the election of a successor to Dr. Smith.

On the 6th of December I received a very courteous letter from Mr. J. H. Blount, of Hertford, the able Solicitor of the First District, stating that at the meeting called as above Dr. J. W. Speight was elected. That the Board of County Commissioners had previously elected Dr. McMullan. That a majority of those eligible to membership in the County Board was not present at this meeting or at that which elected Dr. Smith in the first instance. That he wished to settle the contest between the two gentlemen named. He presented these three questions. 1. If a Superintendent is elected and there is a vacancy what provision or authority is there to fill the vacancy? What provision or authority is there to call a meeting of County Boards of Health on any other day than that designated by the act? What power or authority has less than a majority of the County Board of Health to elect a Superintendent?" and asked that the Attorney General be requested to pass upon them.

The following is an abstract of my reply: No provisions for filling vacancies was made in the law. In the absence of special instructions common sense would suggest that the same power which originally filled the office should fill any vacancy occurring in it. According to my information Dr. J. T. Smith had been properly and regularly elected according to law Superintendent of Health of Perquimans county on the first Monday in September. In obedience to the duty laid upon me as Secretary of the State Board of Health, in section 8 of the law, I had notified all persons eligible to membership in the County Board of Health of the meeting to be held on the first Monday in Sep-

tember. It having been made my duty in that case and not made the duty of any one else in the other it was reasonable to suppose that it was my duty to arrange for the second meeting. In answer to his third question I stated that I could not give an opinion other than it had been customary for the county boards to act regardless of the number present and no point had ever been raised except in one instance. Upon the return to the city of the Attorney General I submitted to him the letters from Mr. Blount, Mr. Speight, the Register of Deeds, Dr. J. W. Speight, the newly elected Superintendent, and my reply to the first named and asked his opinion. He gave it as follows:

RALEIGH, N. C., December 18th, 1893.

Dr. R. H. Lewis, Secretary of the State Board of Health:

After carefully reading the letter of Dr. J. A. Blount to you of December 6th, 1893, concerning the election of a County Superintendent of Health for Perquimans county. I find that it is necessary for a proper decision upon the subject to answer only the third question therein propounded. That question is, what power or authority has less than a majority of the County Board of Health to elect a Superintendent? Less than a majority of the County Board of Health has no power or authority to elect a Superintendent. Without giving my reason for this conclusion more elaborately, I refer you to the case of the Cleveland Cotton Mills vs. The Commissioners of Cleveland county, 108 N. C. Reports, page 678, which to my mind is conclusive of the question. If I am right, the office of Superintendent, above referred to, was never filled by the Board of Health, as there was no legal meeting at the time authorized by law, as a majority did not meet. If there was no lawful meeting there was no legal election. When the County Board fails to meet, as authorized by law, the Board of Commissioners must elect a Superintendent. A majority of the Board of Health of Perquimans county did not meet, so the letter states, and did not elect Dr. J. T. Smith to the office of Superintendent, therefore that office has never been legally filled. It is vacant now and must be filled in accordance with section 5, chapter 214, Laws of 1893. The County Commissioners must therefore, if they have not already done so, elect the Superintendent.

With reference to the other questions in the letter, permit me to say that I will answer them at any time they may become practical, or whenever you deem it necessary for me to do so. Yours respectfully,

F. I. OSBORNE, *Attorney General.*

In accordance with this opinion the County Commissioners elected Dr. J. W. Speight, the present incumbent, the same gentleman that had been chosen by the County Board of Health.

In view of this decision of the Attorney General it is of great importance that the physicians of the State should not forget when the time for the next meeting to elect a Superintendent arrives on the first Monday in September, 1895, that a majority must be present to make a legal quorum.

WATER AND WATER SUPPLIES.

During the year a number of analyses of water under permit of the Board have been kindly made for us by the State Experiment Station, Dr. R. H. Battle, Director. Without mentioning those devoid of special interest I will call attention to those of the two extremes. A sample from the deep well sys-

tem recently put in at the State Hospital at Morganton showed a water of singular purity. In the words of the chemist, "it is refreshing to see such an analysis." On the other hand, samples last fall from the Little River water supply of Goldsboro showed an alarming amount of albuminoid ammonia. As a result of the correspondence which ensued between Mr. T. H. Bain, Clerk of the City Board of Health, and myself, the State Board was requested to send a committee to investigate the water supply. In compliance with this request President Bahnson designated Dr. Geo. G. Thomas and myself. After an inspection of the works and water shed for a mile and a half above the inlake, various inquiries and consultation we prepared and transmitted a full report to the President.

SMALL POX.

Considering the prevalence of this disease in so many localities all over the country, and particularly considering, in view of the first named fact, the defenseless condition of our people from want of vaccination we have been extremely fortunate so far. Only two cases have occurred in our State. One was a refugee from Chattanooga to Cherokee county in December, 1893, and the other a case of varioloid in Wadesboro in the person of a horse drover from Southwest Virginia. The former, rather than submit to the quarantine which Superintendent of Health Abernathy promptly proposed to apply, fled the county and State, thereby demonstrating in a most satisfactory manner the value of an active, alert health officer. The second case, which was a very mild one, was isolated and all persons exposed as well as numbers of others vaccinated. In this way, by scaring a number of the unvaccinated into that most important step, he served an excellent purpose.

This subject of vaccination, i. e., the practical question of how to get the people vaccinated, remains one of the most important and at the same time the most difficult to which we are called to address ourselves. Attention was called to the prevalence of small pox in the country and the importance of vaccination in the December Bulletin and again more at length in that for January. Inasmuch as your Secretary's views were fully set forth in the latter article it is unnecessary to take up your time with recounting them beyond repeating that in his opinion nothing but the actual appearance of small pox in a community will accomplish anything worth mentioning. At the time of the Wadesboro case I ordered one hundred vaccine points in the hope that there might be a demand for them. *Thirty* have been disposed of to date.

VITAL STATISTICS.

While we have made distinct progress in the past year in this branch of our work we are still very far from where we ought to be. It is of course manifestly impossible to obtain accurate statistics from the country districts and so our efforts have been directed to the towns and cities. We have now twenty-nine towns reporting, as against twenty-five a year ago, Morehead having dis-

continued its reports and Lenoir, Pittsboro, Warrenton, Washington and Winston having been added to the list. The total population represented is 144,934, of whom 85,750 are white and 59,204 are colored. The annual death rate for the former is 12.4 and for the latter 21.7 per thousand. The deaths from consumption were among the whites 115 or 1.33 per thousand, while among the negroes they were 184 or 3.11 per thousand. These figures, while we cannot say they are absolutely reliable in every instance, are so in the main and are both interesting and instructive as showing the difference in mortality in the two races, particularly the great increase of consumption in the colored people, among whom it was in the days of slavery almost an unknown quantity, and as illustrating in a striking manner the effects of comparatively sanitary and very unsanitary conditions.

This question of reliable mortuary statistics is an unusually important one to a State which like ours is seeking to attract immigrants of intelligence and character. The health argument is one of our very strongest, but it will have very little weight with the class we have in view unless we can support that argument with facts that cannot be controverted. We have the facts, let us collect them in such a way as to put them above suspicion. To assure reliable statistics from our principal towns and cities a little personal interest on the part of our physicians living within their gates is all that is necessary. We earnestly hope they will help us in this respect.

THE BULLETIN.

Being thoroughly convinced that the cause of preventive medicine in the State could make no substantial progress without at least the moral support if not the positive aid of the members of the profession, our Secretary has used the monthly publication of the Board as a means of communication with them. Acting under the belief that a member of the Medical Society of the State was *ipso facto* more or less alert and interested in his profession and wishing to reach that class particularly, the edition of the Bulletin was with the December number increased from about 800 to nearly 1,200 copies and the name of every member of the Society was put upon the mailing list. As you are already aware an effort has been recently made to obtain a reasonable number of subscribers at 25 cents per annum in order to allow of its being mailed as second class matter at annual saving in postage of more than a hundred and forty dollars. But I regret to say that the effort has met with very indifferent success, the total number of subscribers enrolled to date being fifty-three. The effort will, however, be continued until the requisite number is obtained. When that is accomplished it would probably be wise to still further extend its distribution.

MALARIA AND DRINKING WATER.

Believing that the malarial poison is in many if not most instances introduced into the system through the drinking of surface water from shallow wells

in the considerable portion of our State in which this class of disease prevails, a movement was inaugurated in the last Bulletin to bring about if possible a reform in the matter. To that end a circular letter asking for information upon this subject from those who have had experience with this source of water supply has been sent to every physician in the localities referred to, and to every newspaper with the request to publish. A number of replies have already been received and it is hoped that a mass of evidence of such a character as to impress the minds of the people interested may be secured for subsequent distribution.

LEGISLATION.

Although the new health law enacted by the Legislature of 1893 was a great improvement in many respects on the act of 1885, in two particulars it was distinctly worse, viz: in taking the appointment of a majority of the State Board of Health from the State Medical Society and giving it to the Governor and by reducing the term of office of those elected by the Society from six to two years, the term of the Governor's appointees, instead of raising the latter to six. Some provision should also be made for filling vacancies in the office of Superintendent of Health and certain other minor amendments would be desirable. It is hoped that the Committee on Legislation will bear these matters in mind.

As sight is next to life and as blindness from opathalmia neonatorum is largely preventable it is plainly our duty as guardians of the public health to exert our best efforts to prevent it. It is estimated that there were 5,000 blind from this cause in the United States in 1896, which would mean about 100 for our own State. This sad record should be amended in the coming years. As a step in that direction and a setting forth the opinion of the leading medical men of the State I would respectfully suggest the adoption by this meeting of the following preamble and resolution, the same being a modification of those adopted by the section of Opthalmology of the American Medical Association in 1893:

WHEREAS, There are in our State fully one hundred persons hopelessly blind because of inflammation of the eyes occurring immediately after birth; and

WHEREAS, This unfortunate result is largely preventable, being due to the neglect of nurses and mid-wives Therefore be it

Resolved, That it is the sense of this conjoint session of the State Board of Health and the State Medical Society that legislation tending to lessen blindness from this disease similar to that already enacted in a number of the other States is desirable.

Resolved, That the Committee on Legislation of the Medical Society be requested to use their best endeavors, if in their judgment, after the assembling of the Legislature in 1895, if it be wise to agitate the subject, to secure the enactment of such a law.

EDUCATION IN HYGIENE.

All our principal health officers are physicians and every physician is or ought to be a health officer. It is therefore important that they should be well educated in hygiene. Our Medical Practice Law requires that they shall be,

for "Medical Hygiene" is, in the enumeration of the various branches, on which it is made the duty of the Board of Medical Examiners to examine applicants for license, made of equal dignity with all other branches. There is reason to believe that most if not all our medical colleges do not devote the time or attention to this subject that its importance demands. I would therefore respectfully suggest for your consideration and adoption this resolution:

Resolved, That the medical colleges of the country be requested to give to the subject of Hygiene sufficient time for thorough instruction of their students on that subject not less than two lectures a week.

Resolved further, That our Board of Medical Examiners are hereby requested to require of applicants for license the same preparation on this as on the other branches of medicine named in the Medical Practice Act.

MARITIME QUARANTINE.

It is with great regret that I report the failure so far on the part of the City of Wilmington to avail itself of the opportunity to secure a first-class quarantine station, with all the modern improvements, at Southport. It will be remembered that as the result of the well-planned earnest efforts of Drs. Thomas, Burbank and others the last Legislature appropriated twenty thousand dollars for that purpose upon condition that the City of Wilmington supplement it with five thousand. This condition the Board of Aldermen at its last meeting refused to comply with, proposing instead to ask the United States authorities to take charge. Whether they will do so or not remains to be seen, but in any event it is a great disappointment not to have our own station.

MEETINGS OF HEALTH ASSOCIATIONS.

In obedience to instructions from the President of the Board I attended the Pan-American Medical Congress at its first session in the City of Washington in September last. Being present as a delegate from our State Board of Health I attended almost exclusively the session on Hygiene, Climatology and Demography.

In October in company with Mr. J. C. Chase I attended the International Congress of Public Health, which met with the American Public Health Association in the City of Chicago. While the number of delegates from abroad was very limited the meeting was both interesting and instructive. At both of these gatherings your Secretary obtained new ideas and had his sanitary zeal quickened.

CONCLUSION.

In conclusion I am proud to say that in looking back over the past year it is clear that the cause of preventive medicine in North Carolina has gained ground. In addition to the particular things that have been accomplished as set forth in the body of this report, the interest in the cause on the part of both the profession and the people is greater than it was. I feel that we have a right to "thank God and take courage" in the hope of make still greater progress the coming year.

DISCUSSION.

Dr. Hill asked if the water at Goldsboro might not have been made impure by the decomposition of the vegetable matter in the river.

Dr. Lewis stated that that was the opinion of the Secretary until after the analysis of the river water.

The question was asked if persons drank that water continually would it not show itself in some disease. Dr. Lewis said that a person may drink very filthy water that is not perceptibly hurt, while a person may drink a mineral water that is contaminated with a disease and may be made sick. It does not follow because persons are not made sick that the water is not impure. The filthiness of the water only affords better opportunity for the development of the germs.

The authorities should receive full power from the Legislature to have charge over the water-shed. The law is of a most rigid character. A man is severely punished for throwing matter which has not been disinfected upon the water-shed.

Dr. Faison said that the water of Charlotte was decidedly foul and full of germs and he wanted to know if there was any arrangement or any money by which the Board might help the city.

Dr. Kinyoun was asked for his advice upon the subject.

Dr. Kinyoun—To explain all the qualities of drinking water, even from the bacteriological point of view, would mean many hours, for there are a great many opinions, and a great many adverse opinions to be given. In answering the query, I would say, in regard to bacteriological examinations, the general policy of the Marine Hospital Service, in so far as it could never examine all the kinds of water that would be submitted to it, if it would signify its wil lingness to do so, is to bring before the authorities of the State the necessity for these examinations, and to encourage home sanitation, which is the sanitation to be desired. The hospital service is now open for instruction of representatives from State and municipal authorities, for the purpose of giving them the necessary information for making these examinations. A complete laboratory for making the experiments is not necessary. It is earnestly desired that the States will give it their official recognition and send representatives. All materials will be furnished gratis.

In regard to the character of the water, if the signs of the sewage of the city should continue to be found in the water, I should unhesitatingly condemn it as suspicious. It is especially so of well water. If you have an examination made of a well, and the analysis proves to be fair or good, it does not follow that within six weeks the water may not become contaminated. The examinations should be made often enough to establish the purity of the water. The apparatus for examining the water is so simple and so inexpensive,

the most expense is the microscope and it can be gotten for $75, that the county with a hundred and fifty dollars can purchase sufficient apparatus for the examinations.

The course in Washington is six weeks in duration.

The question was asked that if to a certain sample of water one drop of permanganate of potash be added and the water set aside for an hour or two and still retain the peculiar color would he consider that water drinkable. Or, if he made a solution of nitrate of silver, and if after an hour there was the slightest milky appearance and no deposit, would he not consider the water contaminated with organic matter.

Dr. Kinyoun—No, I do not. Very frequently the permanganate is clarified by the acid in the water. Unless it has a large amount of organic matter present the amount is not worth mentioning in establishing the purity of the water.

Dr. Powers said that he understood from what had been said that anything that is not destructive to bacteria might become favorable to its development. Even if the water is chemically pure they will be present in it in an active state, and when taken into the body, if conditions are favorable, germination will take place. On the other hand, if the water contains a trace of organic matter, and nearly all pure waters do, the germination begins to take place in the water. According to the amount of organic matter in the water depends the strength of the bacteria. We can see in this way how in one year we have a very mild form of a disease and the next year have a very severe form.

A motion was passed on certain recommendations made by the Secretary.

Dr. Lewis said, in regard to the prevention of blindness, an objection had been raised that it is impossible to have a law such as this carried out. The law simply requires that the attendant on the appearance of redness of the eyes immediately after birth shall report it to the physician. The main idea is that people have a tendency to follow the law just because it is the law.

The Secretary thanked the county superintendents for their presence and for the prompt reports they had handed in.

REPORT OF OBITUARY COMMITTEE.

Mr. President and Members of the North Carolina Medical Society.

As a member of the Obituary Committee it becomes my sad duty to look over this worthy body of co-laborers in the ever widening field of medical science and observe the seats made vacant by the insatiable and relentless harvester—Death. In the discharge of this painful task assigned, we are impelled, by emotions of deep sorrow and fraternal bereavement, to realize that we are in the awful presence of death when every voice is silent except the voice of sorrow and eulogy. This is the time when the infirmities of mortality are forgotten, the good alone remembered; criticism is disarmed censure loses its power; men instinctively concede, as they expect, this sad immunity to the grave. Among the honored names stricken by the hand of death from our catalogue of membership we find those whom we have ever held in greatest esteem and reverance; those who were thoroughly equipped to combat with death—wearing the bright and burnished armor of the Christian's faith and could exclaim: "There is no death—what seems so is transition. This short breath of life is but the suburb of the life elysian, whose portals we call death."

Your committee, with but partial co-operative effort in the preparation of the biographical sketches of our deceased brothers, must respectfully invoke your kindly forgiveness for seeming direlection of duty in thus submitting so imperfectly and hastily prepared a report. Dr. Hodges, our distinguished confere, being called to a professorship in the Chair of Anatomy and Surgery in the University Medical college of Virginia, and Dr. Walter C. Galloway, another member of the Obituary Committee, being absent from the State attending a special course in Opthalmology in Baltimore, Md., but who has assisted in this report:

N. J. PITTMAN, M. D.

"The first deceased brother of whom we would make special mention is one whose name is almost inseparably connected and identified with the growth and development of the North Carolina Medical Society, of which he became a zealous and active member at its annual convention in 1850.

The competition prize essay announced each year bears testimony of the unabated interest our distinguished brother still felt in the progress and welfare of this Society.

Among North Carolina's most prominent physicians appears the name of N. J. Pittman, who was born in Halifax county, N. C., August 9th, 1818.

Dr. Pittman descended from an English family, his grandfather having fled from England to America on account of the persecution of Oliver Cromwell. Dr. Pittman received a thorough literary education, and for a time read law. Later his attention was turned to medicine, and in 1839 he received his diploma

from the University of Pennsylvania. Until 1850 he was engaged in practice at the Falls of Tar river, when he decided to take a more extended course in the medical schools of Europe. For two years he remained in Paris, then the city of sciences, and later pursued his studies at Berlin, and also gained an intimate knowledge in the schools of London. During his residence abroad Dr. Pittman became personally known to many of the great scientific men of his day. In 1853 he returned to his native country and resumed his practice at Tarboro, where he resided until his death. In 1857 Dr. Pittman was elected President of the Edgecombe county Medical Society and one year later was made President of the State Medical Society, he having been most active in the organization of both of these societies, and also as organizer of the State Board of Medical Examiners, of which he was the second President. He was a member of the Society of Science, Letters and Art, of London, Eng., and his family are in the possession of an invaluable souvenir, a badge presented by this society in London.

When the dark and portentous clouds of war draped the political horizon of his beloved Southland in 1861, inspired with true chivalry and patriotic devotion, he cast his influence and service with the South, and served as surgeon in Branch's brigade until captured with the Confederate forces that surrendered at Newbern.

From 1866 to 1872 Dr. Pittman was a member of the State Board of Medical Examiners, and in 1877 he presided as First Vice President of the National Association, which met at Chicago, and in 1881 was a delegate to the International Medical Congress in London from the American Medical Association and North Carolina Medical Society, and in the same year was a delegate to the British Medical Association, which met at Hyde, Isle of Wight.

Dr. Pittman devoted much of his professional energy and time to gynecology as a specialty, upon which he wrote several valuable papers. His practice was large and lucrative; beside he was possessed of large real estate interest, taking especial interest in his declining years in agriculture and stock raising. His large herds of Shropshire sheep and Devon and Jersey cattle made him famous as a stock-raiser in his native State.

Dr. Pittman was a Master Mason and a member of the Episcopal church, and his earthly career was characterized by an unfaltering trust, sustained by faith, through grace in the atonement of a Saviour's blood.

J. J. SUMMERELL, M. D.

The next honored and lamented dead, I would mention the name of Dr. Joseph John Summerell, of Salisbury, N. C., where he continued in the active practice of his profession for nearly fifty years. Dr. Summerell was graduated from the University of North Carolina in 1842, and studying medicine, was graduated as a physician from the University of Pennsylvania in 1844. He acted as Superintendent of Public Health for Rowan county for thirty years,

beside serving in other official positions in municipal and county affairs. In 1855 Dr. Summerell became a member of the State Medical Society, and 1862 was elected President of the same. He always manifested great interest in its labors and welfare. He was born in Halifax county November 13th, 1819.

Dr. Summerell became a member of the Salisbury Presbyterian church in 1847, was ordained as deacon in 1852, and a ruling elder in 1866, and continued to serve his church in the latter office till he was called to that "undiscovered country from whose bourne no traveler e'er returns." He represented his church in presbytery, in synod and the general assembly with fidelity. His life has been characterized by the faithful performance of every duty imposed, manifesting remarkable candor and courage. In every relation of life he controlled the confidence of his fellow citizens. His fifty years of laborious professional work have their just mead of praise and compensation by his hosts of cherished friends who commemorate his exalting and exemplary life, which should serve as a beacon light to those who would emulate the example of one whose chief delight it was to consecrate himself not only to the Master's work, but to mitigate the sufferings of mankind wherever found. It is said that whatever professional work he did on the Lord's day he gave the money collected therefrom as a beneficiary fund for church purposes. "Abon Ben Adhem—may his tribe increase." And if he had faults, which are inseparable from human nature, may the recording angel while writing in the book of gold the names of those blessed of God, drop tears of love and mercy and blot them out forever. Dr. Summerell has, like the sturdy and majestic oak, withstood the storm clouds in life's conflict, and with heroic, Christ-like devotion met the inevitable, a destiny that awaits us all and wrapped the drapery of his couch about him and fell on sleep.

E. BURKE HAYWOOD, A. M., M. D., L.L. D.

North Carolina is opulent in noble names that were not born to die. Among those that have enriched and adorned her history there are none more prominent and illustrious than Haywood. Gray, in his beautiful and exquisite Eulegy, says:

> "The boast of Heraldry, the pomp of Power,
> All that Beauty, all that Wealth e'er gave,
> Await alike the inevitable hour,
> The paths of glory lead but to the grave."

Shakespeare, the crowning glory of poesy, writes:

> "The evil that men do lives after them;
> The good is oft interred with their bones."

While such is often true, there are many examples to the contrary, Shakespeare himself being one of them. In every century there are lofty characters, if not exalted family, who were never ushered into being simply

> "to blush unseen,
> And waste their sweetness on the desert air."

We rather believe with Moore:

> "You may break, you may shatter, the vase, if you will,
> But the scent of the roses will hang round it still."

As long as the splendid and chivalric deeds of our State shall be told in story, just so long the name of Haywood will live in our hearts.

> "Like some sweet memory undecayed."

As we lay this sprig of immortelle upon the bier of the hallowed dead, we feel that the task could have been assigned to better hands.

E. Burke Haywood, A. M., M. D., L.L. D., the subject of this hasty sketch, was born in Raleigh, N. C., January 18th, 1825.

The Haywood family came originally from the county of Lancaster, England. In the year 1662, John Haywood emigrated from the parish of Batton-en-le-Moors in that shire, to the Island of Barbadoes, in the West Indies Many eminent men have sprung from this Haywood stock, and in each generation they have played an important part in North Carolina. The grandfather of Dr. Burke Haywood, as he was more familiarly known, was Col. William Haywood, who, in Colonial days was a useful, patriotic, and conspicuous citizen. He filled various offices civil and military, among them that of Colonel of Edgecombe county, in 1765; chairman of the Committee of Safety, same county, in the year 1775; member of the State Congress held at Halifax in the spring and fall respectively of 1776, the constitution being adopted at the latter term. He was a leading, active, sagacious member of the committee that framed the constitution, and in December, 1776, was chosen one of the counsellors of the State. John Haywood, a son of Col. William Haywood, and the father of Dr. Burke Haywood, was Treasurer of the State consecutively from 1787 to 1827, a period of forty years. The length of continuous service in such a responsible position, was a fitting tribute to his faithfulness, honesty and ability. He was the first vestryman of Christ church, Raleigh; and in his honor the town and county of Haywood were named. A first cousin of his, also called John Haywood, was esteemed the most consummate lawyer of his day.

This gifted, cogent, profound and eloquent advocate was elected Attorney General in 1791, and three years later graced the Supreme Court bench. A "Manual of Laws of North Carolina," "Haywood's Justice" and "Haywood's Reports" are productions of his fertile brain. Chief Justice Henderson paid him this handsome compliment: "He disparaged neither the living nor the dead when he said that an abler man than John Haywood never appeared at the bar or sat on the bench of North Carolina."

Eliza Eagle Williams, the daughter of John Pugh Williams, was the mother of Dr. Burke Haywood. She was a lady of untroubled sweetness of disposition, graceful in carriage, charming in manners, fluent and sparkling in conversation, and was the possessor of varied accomplishments. These were

tinctured and mellowed by the delightful and refining influences of the Christian religion. Her father was a leading character in our State. He was made captain of the North Carolina troops in the Edenton district in April, 1776, the following November was commissioned Colonel of the Ninth regiment of the Continental line, and served as a brave and gallant officer in the Revolutionary war. His brother, the Hon. Benjamin Williams, represented his district in Congress and was twice elected Governor of the State. Among the brothers of Dr. Haywood were Dr. Fabius J. Haywood, an accomplished gentleman and distinguished physician, and George W. Haywood, a learned and brilliant lawyer. A sister, Miss Eliza Eagles Haywood, was highly educated, and possessed those rare and elegant charms of person and character that rendered her one of the most delightful and companionable of her sex.

From the foregoing it will be seen that Dr. Burke Haywood inherited greatness.

Who can limit the mighty influence of a gifted, unsullied father, and a pure, refined, and consecrated mother upon their child? He was literally cradled in the lullaby of divine inspiration, and under such magical, heavenly power, the boy waxed strong in body and mind.

He attended the Raleigh academy successively under the Rev. Dr. McPheeters, Silas Bigelow and J. M. Lovejoy. In his eighteenth year he entered the University of North Carolina and won first distinction; but finally failing health caused him to forego the pleasure of remaining at his beloved alma mater until he could take his degree. Gen. Johnston Pettigrew, Senator John Pool and Senator Matthew W. Ransom were numbered among his intimate class mates. He prosecuted medicine at the University of Pennsylvania, where he graduated with distinction in 1849.

Immediately after receiving his diploma he returned to Raleigh and entered upon a lucrative practice. The following year he joined the North Carolina Medical Society, and, throughout his long, brilliant and successful career, was its zealous and faithful friend.

For twelve years he assiduously followed his profession in his native town, and as the years passed by his practice increased and fame extended. But when the "blast of war blew in his ears," impelled by a love of mother, home and country, he, in May, 1861, heroically abandoned his profitable field, enlisted in the Raleigh Light Infantry and was elected its surgeon.

A few days thereafter he established at Raleigh the first military hospital in North Carolina during the late war. Honors now came to him thick and fast. In the month of May, 1861, he was placed in charge of the Fair Ground hospital at Raleigh: was appointed surgeon of the North Carolina State troops; was made surgeon of the military post at Raleigh, with the assimilated rank of major; was assigned to the camp of instruction near Raleigh as chief surgeon, with the assimilated rank of major; was authorized by Adjutant General Hoke

to select a druggist, two assistant surgeons and two nurses for the hospital of instruction near Raleigh, and Governor Ellis was so pleased with his fine abilities and sound judgment that he sent him in the same month on a tour of inspection and observation of the military hospitals on Morris Island, S. C. On the 4th of the next June he received the appointment of surgeon of post at Raleigh of the State troops, and on the 15th of July thereafter he was chosen president of a board of surgeons to examine applicants for the position of surgeon to the North Carolina troops. In the year 1862 the following appointments were bestowed upon him. By James A. Seddon, Secretary of War, surgeon in the Provisional army in the service of the Confederate States, duty being assigned him at Seabrook's hospital in the engagements around Richmond; president of the medical board for granting furloughs and discharges from the Confederate States army for Raleigh, N. C.; acting medical director in the same army for the department of North Carolina. He exhibited his loyalty and devotion to the Lost Cause, and his charity to the stricken by faithfully and humanely caring for the disabled Confederates in Pettigrew's hospital at Raleigh, and not until July the 4th, 1865, did he resume his civil practice, the last sick and wounded soldier being then dismissed from the hospital cured and able to return to his home.

Many marks of distinction were tendered him by the North Carolina Medical Society, chief of which were the chair of surgery of the board of medical examiners for a term of six years; member of the committee of publication of the transactions; member of the board to examine druggists; member of the board of censors; delegate to the American Medical association, 1869, 1870, 1875 and 1876; delegate to the International Medical Congress, Philadelphia, 1876, and the Ninth International Medical Congress, Washington City, 1887; delegate to the annual session of the Association of Medical Officers of the Army and Navy; vice presidency and presidency. When he retired from the presidency of the Medical Society, which occurred in May, 1869, he delivered an address entitled "The Physician; His Relations to the Community and the Law," which was published by the request of the Society. This address displayed his deep powers of thought, keen, accurate observation, extensive learning, aptness of illustration, and felicity of expression, and won for him the admiration of the medical fraternity and added largely to his already enviable reputation.

He was one of the organizers of the Raleigh Academy of Medicine in 1870; and that institution conferred upon him secretary's PHYSICIAN and the office of president for the years 1874, 1882 and 1893. In 1873 he was elected corresponding member of the Gynecological Society of Boston, Mass. The University of North Carolina honored him with the degree of A. M. in 1868, and L.L. D. in 1889, he being the first physician in North Carolina upon whom the University ever bestowed the latter degree. He was president of the board of

health for Wake county; member of the board of directors and physician to Peace Institute, Raleigh, N. C.; surgeon to the Confederate Survivors Association; elected one of the Physicians to the Deaf, Dumb and Blind Asylum; chosen medical director of the North Carolina Insurance Company; medical examiner of the Mutual, Equitable, New York, Manhattan, United States Life, and several other prominent life insurance companies. Was elected delegate to the National Quarantine Conference at Montgomery, Ala., February, 1889; delegate in April, 1890, to the Seventeenth National Conference of Charities and Corrections held in Baltimore; delegate to a similar conference at Indianapolis in May, 1891; delegate to the Pan-American Medical Congress held in Washington, D. C., September, 1893; and, on March 16th, 1866, was appointed a member of the board of directors of the North Carolina Insane Asylum, notwithstanding the fact that he was strongly opposed politically to the administration in power at the time; and was elected its president in 1875, which position he held until August 10th, 1889, when he resigned, and was made chairman of the Board of Public Charities.

The unfortunate insane of our State have never had a better advocate, nor a warmer, more zealous friend than Dr. Burke Haywood. When the Legislature, in 1875, was on the eve of utilizing the Marine hospital at Wilmington as an asylum for the colored insane, he demonstrated the impracticability of such a step and urged the erection of a suitable building for those people.

Through his efforts a commission was appointed who selected a beautiful, commanding site two miles west of Goldsboro, upon which the large and commodious Colored Insane Asylum was soon constructed, largely due to his influence. The rapid filling up of that asylum showed the necessity for its being built. The establishment of the Western Insane Asylum at Morganton was largely due to his influence. It is situated upon one of the loveliest and most picturesque plateaus in our enchanted "Land of the Sky;" is easily the handsomest and best appointed asylum in the South, and the equal of any like edifice in this country. Dr. Haywood, for many years, was regarded the most eminent surgeon and physician in our State. He was a cool, dexterous, skillful operator, and performed many of the major surgical operations. He did successfully the Cæsarian section in August, 1874; the same year operated four times for strangulated hernia, and his operations for lacerated perineum were numerous. He ligated the right external iliac artery for traumatic aneurism of the femoral, the first of the kind ever undertaken in North Carolina. This brilliant and successful performance won for him the highest encomiums, and it was considered so important that it was published in pamphlet form by order both of the Raleigh Academy of Medicine and the North Carolina Medical Society. He excised the mammæ affected with carcinoma, twice successfully removed submucous fibroid tumors of the uterus, aspirated in a case of hydrops pericardii, did external œsophagotamy for im-

pacted foreign body low down in the œsophagus, amputated the thigh in upper third for gangrene of leg, caused by traumatic femoral aneurism, performed tracheotomy for foreign body in the bronchus, together with other important operations. In April, 1869, he assisted Dr. Washington Atlee, of Philadelphia, in performing ovariotomy at Raleigh. The patient was left entirely in Dr. Haywood's care, made a happy recovery, and afterwards became the mother of three children. The busy physician, doing a general practice, where office hours cannot well be regulated, is entirely too constantly occupied to devote much of his time to authorship, but, when thoroughly grounded in medicine, he is, above all other men, the very one who is the most capable of writing edifyingly, because he draws from his own vast storehouse of knowledge and experience Dr. Haywood, due to press of professional labors, wrote but little, but his few contributions to medical literature are strongly, ably written, and they are embelished with a diction so rich, lucid and fluent that it captivates and instructs.

Among his articles that were published may be mentioned. "Report of an operation for traumatic aneurism of femoral artery, cured by ligature;" "Report of a case of compound comminuted fracture of middle and lower thirds of both bones of right leg;" "Compound fracture of left femur, just above the condyles;" "Report of a successful operation for traumatic aneurism of the superficial palmar arch;" "A case of craniotomy;" "An operation for vesico-vaginal fistula;" "Report of a successful operation for compound comminuted fracture of cranium, with extensive depression, and several large fragments driven into the brain;" "Report of a case of total necrosis of diaphysis of the tibia, periosteum not necessary for osteo genesis;" "Report of a case of membranous croup, tracheotomy successfully performed, and the child entirely recovered;" "Report of a case of amputation of the right thigh at the upper third, for galatinous arthritis;" "Report of an operation for fistula in ano with the elastic ligature."

Dr. Haywood was a consistent member of Christ Episcopal Church, Raleigh, and for twenty years was one of its active, trusted and discreet vestrymen. In all the walks of life he measured up to the highest standard. The splendor of his attainments in the medical department and the excellence of his official career, whether acting for a society, company, or the State, while they brought him reputation and fame, not only at home, but abroad, and were, doubtless, a source of satisfaction and enjoyment, were still not comparable to his virtues as a private citizen..

He was a model husband, a kind, affectionate father, pure, tender and engaging in all of his domestic relations, a warm, true friend, a wise, safe counsellor, charitable to the poor and afflicted, a perfect gentleman, and an humble, untarnished Christian. As a bank of violets receives and diffuses odors, so he went through life dispensing with lavish hand the sweet aroma of happiness and receiving it in full measure.

In November, 1850, Dr. Haywood married Miss Lucy A. Williams, daughter of Mr. Alfred Williams, whose firm name of "Alfred Williams & Co," booksellers, for more than fifty years has been well know all over North Carolina. She is a woman of many excellencies of head and heart, a fit consort of a chivalric, magnificent man, sweet as the May-morn breeze wafted from a bed of roses and pure as the snowy, dew-decked lilies that grow, and "Soloman in all his glory, was not arrayed like one of these." The fruit of this union was a daughter, the wife of Mr. Preston L. Bridgers, of Wilmington, and six sons: Edmund Burke Haywood, a planter; Alfred Williams and Ernest Haywood, able lawyers and celebrated throughout the State; Dr. Hubert Haywood, well known and eminent in his profession; Edgar Haywood, associated with the firm of Alfred Williams & Co., and John Haywood, a cotton dealer in Alabama.

On the 18th of January, 1894, within one year of the Bible allotment, Dr. E. Burke Haywood died of la grippe, complicated with acute pleurisy. Full of honors and full of years, he sleeps the sleep of the just. Peace to his ashes.

The reputation and influence of these truly good and learned men cannot be measured by words of commemoration. Their example and influence in moulding thought and giving direction to events are as measureless as their souls and enduring as eternity.

Art may be busy with her chisel and pencil to perpetuate their features and images, but their example can alone be embalmed in memory and serve as beacon lights to those who should ascend the steep and stubborn steps to ambition's heights to view "Fame's bright and shining temple from afar" and receive a just meade of praise for earth's labors truly and faithfully performed.

J. A. Hodges,
W. C. Galloway,
W. J. Jones,
Obituary Committee.

Annual Necrology.

Dr. N. J. PITTMAN,

" J. J. SUMMERELL,

" E. BURKE HAYWOOD,

" F. W. POTTER,

" C. E. BRADSHER,

" F. W. HARRIS,

" D. J. CAIN,

" F. B. ROBERTSON,

" J. H. FAISON,

" H. C. JACKSON,

" R. W. THOMAS,

" J. H. BINGHAM,

" J. R. PEARSALL,

" W. JOSEPHUS JONES,

" W. M. FLOW,

" L. S. FLOW.

MEETING OF THE BOARD OF MEDICAL EXAMINERS OF NORTH CAROLINA.

The Board of Medical Examiners met at Greensboro Monday, May 14th, 1894, at 10 a. m.

The morning was spent in the registration of candidates—72 in number.

All of the members of the Board were present except Dr. George Gillett Thomas, who was unavoidably detained at his home. However, Dr. Thomas sent in his examination in Chemistry for the use of the Board.

Two written examinations were held daily except on Monday.

Dr. Julian M. Baker held Obstetrical examinations on the manikin, and written examinations on Gyæcology and diseases of Children.

Drs. Picot and Whitehead held examinations on Bandaging.

The examinations in Materia Medica and Therapeutics are supplemented by the identification of drugs.

The highest average was made by Dr. Hubert A. Royster (98 13-13), who won the Appleton prize. The lowest grade was 25. The required grade was 80 per cent.

The following is the list of the licentiates:

Drs. E. R. Jefferson (col.), Raleigh; G. S. Tennent, Davidson; W. T. Turlington, Benson; H. C. Abernethy, Mariposa; J. S. Brown, Bear Poplar; G A. Coggleshall, Oxford; L. A. Nowell, Coleraine; J. R. Palmer, Macon; W. J. Sumner, Buffalo Ford; J. R. Alexander, Croft; Clara E. Jones (female), Goldsboro; L. McD. Henderson, Croft; J. M. Ledbetter, Rockingham; John A. Pickett, Liberty; John Thames, Thomasville; F. M. Clarke, Beaufort; H. G. Utley, Raleigh; T. E. Linn, Asheville; J. H. Bennett, Wadesboro; Geo. P. Reid, Old Fort; Geo. Thrash, Asheville; B. K. Hays, Oxford; J. T. Miller, Hot Springs; J. E. Smoot, Omega; J. W. Bryan (col.), Tarboro; Wm. L. Kirkpatrick, Crabtree; HUBERT A. ROYSTER, Raleigh; L. Johnston Woodstock, Asheville; W. E. Evans, Carthage; R. L. McGeachy, Fayetteville; J. W. Kornegay, Mt Olive; H. C. Menzies, Hickory; H. P. Bowman, Liberty; W. D. Young, E. Durham; F. M. Davis, Iron Duff; L. Hughes Browne (col. female), Wilmington; Anna M. Gove (female), Greensboro; Charles H. Brantley, Finch; Jas. C. Gill, Weaverville; J. H. Alston (col.), Wilmington; S. W. Mott, Davidson; B. H. Greenwood, Barnardsville; W. H. Wooten, Davidson.

Temporary licenses since the Board meeting at Wrightsville have been issued to the following persons:

J. R. Jump, L. LeClerge, W. D. Young, T. E. Linn, R. E. L. Flippen, E. R. Jefferson, Anna M. Gove, G. A. Coggleshall, H. C. Rogers, J. E. Smoot, D. R. Green, J. S. Brown, Chas. S. Tate.

These temporary licenses expired on the morning of the first day of the Society meeting. Some of the above-named persons failed to appear for examination.

Upon discussion, it was decided to hold an extra session at a time and place to be selected by the President and Secretary. This session will be held the last week in July or first week in August. Due notice will be given through this JOURNAL, as well as the newspapers. A written notice will be sent, also, to each rejected candidate.

The terms of office of Drs Robert S. Young and George Gillett Thomas having expired, Drs. J. M. Hays and Thomas S. Burbank were elected to fill a six-year term.

The Board passed resolutions of thanks to the retiring members for their faithful and efficient services as Examiners.

After routine business, the Board adjourned on Friday night, May 18th.

WM. H. WHITEHEAD, M.D., President.

L. J. PICOT, M.D., Secretary.

CONSTITUTION.

ARTICLE I.

TITLE OF THE SOCIETY.

The name and title of this Society shall be "The Medical Society of the State of North Carolina."

ARTICLE II.

OBJECTS OF THE SOCIETY.

The objects of this Society shall be the advancement of medical knowledge, the elevation of professional character, and the promotion of all measures of a professional nature that are adapted to the relief of suffering humanity, and to improve the health and protect the lives of the community.

ARTICLE III.

MEMBERS OF THE SOCIETY.

SECTION 1.—This Society shall consist of Active and Honorary members, and Honorary Fellows.

SEC. 2.—The Active members shall consist of such regular physicians as have complied, or shall comply with the laws of the State, ratified February 28th, 1889, and shall receive the approval of the Committee on Credentials and a two-thirds vote of the members present at the meeting at which their applications for membership are presented. They shall be required to sign the Constitution and By-Laws of the Society, pay an initiation fee of five dollars, and shall be liable for such dues for defraying the expenses of the Society as the Society may, from year to year, agree upon.

SEC. 3.—The Honorary Members shall consist of such regular physicians as have won distinction by their contributions to medical science; those elderly physicians who, prior to their retirement from practice, have displayed a proper interest in the welfare of this Society, or who, by their example, have reflected credit and honor upon the profession. They must receive a two-thirds vote of the members present at the meeting at which their names are presented for election. They shall be exempt from all dues and fines and shall be entitled to all the privileges of the Society except the right to vote and hold office.

SEC. 4.—The Honorary Fellows shall consist of such physicians as have been members of this Society for thirty years, and whose dues have been paid during that time. They shall receive a two-thirds vote of the members present at the meeting at which their names are proposed for promotion. They shall be exempt from all dues and fines and shall be entitled to all the privileges enjoyed by active members in good standing.

ARTICLE IV.

OF THE OFFICERS.

SEC. 1.—The officers of this Society shall be a President, Vice President, a Corresponding and Recording Secretary and a Treasurer.

SEC. 2.—They shall be elected by ballot, on the afternoon of the second day of the session, a plurality of votes cast being sufficient for election, and shall serve for one year, except the Secretary and the Treasurer, who may serve for three years, or until his successor is elected.

SEC. 3.—Any nominee for the office of President shall have been an active member of the Society for five years, including the year of his election, shall have attended two of the three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE V.

DUTIES OF THE OFFICERS.

SEC. 1.—The President shall preside at the meetings, preserve order and perform such other duties as pertain to his office. He shall not be eligible for a second term.

SEC. 2.—The Vice Presidents, in the order of their rank, shall assist the President in the performance of his duties, and during his absence, or at his request, shall officiate in his place. They shall not be eligible two terms in succession.

SEC. 3.—The Corresponding and Recording Secretary shall conduct the correspondence of the Society, and shall be the custodian of all papers belonging to the Society, except such as appertain to the Treasurer. He shall keep correct minutes of the proceedings of the Society, taking immediate possession of all papers read before the Society, and shall place them in the hands of the Publication Committee within thirty days after the adjournment of the Society. He shall advertise in two of the leading papers of the State a month in advance all meetings of the Society; and shall, at the same time, mail to each member a notice of the time and place of the meeting, and shall perform all such other duties as usually appertain to his office. He shall receive such compensation as the Society may, from year to year, agree upon.

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PROGRAM

FOR THE

Forty-First Annual Meeting,

OF THE

Medical Society,

OF THE

State of North Carolina.

TO BE HELD IN

Greensboro, May 15th, 16th and 17th, 1894.

All regular, registered physicians in North Carolina, in good standing, are cordially invited to attend this meeting, and connect themselves with the State Society.

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—OFFICERS.—

President:

Dr. W. H. H. COBB, Goldsboro.

Vice-Presidents:

Dr. J. A. HODGES, Richmond, Va.
Dr. R. W. TATE, Greensboro.
D . WILLIS ALSTON, Littleton.
Dr. M. H. FLETCHER, Asheville.

Secretary:

Dr. ROBERT D. JEWETT, Wilmington.

Treasurer:

Dr. M. P. PERRY, Macon.

—COMMITTEES.—

Board of Censors:

Dr. W. C. McDUFFIE, Dr. T. E. ANDERSON,
Dr. H. H. HARRISS.

Obituary:

Dr. J. A. HODGES, Dr. W. C. GALLOWAY,
Dr. W. J. JONES.

Legislation:

Dr. A. W. KNOX, Dr. T. S. BURBANK,
Dr. HUBERT HAYWOOD, Dr. K. P. BATTLE.
Dr. T. D. HAIGH.

Duffy Prize:

Dr. J. H. TUCKER, Dr. W. C. GALLOWAY
Dr. W. O. McDOWELL.

North Carolina Medical Journal Prize:

Dr. J. M. HAYS, Dr. J. W. LONG
Dr. W. P. BEALL

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PROGRAM.

TUESDAY, MAY 15th—Morning.

10.00. Calling Convention to Order. W. R. BEALL, Chairman Local Committe of Arrangements.

Prayer.

Address of Welcome. Col. R. M. DOUGLASS, Greensboro

Response. Dr. J B. POWERS, Wake Forest.

Society called to order for transaction of business, by the President, W. H. H. COBB, M.D., Goldsboro.

Appointment of Committees on Finance and Credentials.

Roll call.

President's Message.

Business requiring early attention.

SECTION ON PATHOLOGY AND MISCROSCOPY.

Report of Chairman, J. B. POWERS, M.D., "From Bacteria to Immunity."

"A Pathological view of Some of the Acute Specific Fevers." THOS. M. RIDDICK, M. D.

"The Pathology of Child bed Diseases." J M. HAYS, M. D.

"Ptomainic Intoxication and Gastro intestinal Antisepsis." J. R. IRWIN, M.D.

Voluntary Papers pertaining to this Section.

Reports of Committees.

Unfinished Business.

New Business.

Adjournment.

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TUESDAY, MAY 15th—Afternoon.

3.00. Society called to order.

SECTION ON ANATOMY AND SURGERY.

Report of Chairman, R. H. STANCELL, Jr., "Some Recent Ideas."

"Report of a Case of Enterorrhaphy for Gun-Shot Wound of Small Intestines, with Recovery." RANDOLPH WINSLOW A.M., M.D

"Antiseptic Surgical Dressings." D. A. STANTON, M. D.

"Ophthalmology." J. M. HAYS, M. D.

"Syphilis." J. E. ASHCRAFT, M. D.

Voluntary papers pertaining to this Section.

SECTION ON PHYSIOLOGY AND MATERIA-MEDICA.

Report of Chairman. J. P. FEARRINGTON, M. D.

"The Coal-Tar Derivatives: Their Physiological and Therapeutic Action." R. F. GRAY, M. D.

"Acetanilid." A. M. LEE, M.D.

"Some Recent Antipyretics." W. E. HEADEN, M. D.

Voluntary papers pertaining to this Section.

Reports of Committees.

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TUESDAY, MAY 15th—Evening.

8.30. Society called to order.

ANNUAL DISCUSSION.

"Hydrotherapy."—R. L. GIBBON, M.D., Leader.

Voluntary Papers pertaining to this subject.

Papers in previous sections omitted.

Reports of Committees.

Unfinished Business.

New Business.

Adjournment.

WEDNESDAY, MAY 16th—Morning.

10.00. Society called to order.

Appointment of Committee on Nominations.

Election to fill Vacancies (two) on the Board of Medical Examiners.

SECTION ON MEDICAL JURISPRUDENCE AND STATE MEDICINE.

Report of Chairman, A. CHEATHAM, M.D., "The Plea of Insanity to Evade the Law."

Vountary Papers Pertaining to this Section.

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SECTION ON THERAPEUTICS and PRACTICE OF MEDICINE.

Report of Chairman—E. C. LAIRD, M. D.

"Some of Our Indigenous Remedies." THOS. HILL, M. D.

"The Value of Electricity as a Therapeutic Agent."—. . A. HODGES, M. D.

"Family Predisposition to Intestinal Hemorrhage in Typhoid Fever."—W. T. PATE, M, D.

"How should the Physician Treat Consumption at Home." KARL VON RUCK, M.D.

Voluntary Papers Pertaining to this Section.

12.00. CONJOINT SESSION WITH THE STATE BOARD OF HEALTH.

Report of the President, H. T. BAHNSON, M. D.

Report of the Secretary, R. H. LEWIS, M. D.

"Epidemic of Typhoid Fever at Gibson's Station, N. C." N. M. McLEAN, M. D.

Voluntary papers on Board of Health matters.

Miscellaneous business.

Adjournment of Conjoint Session.

Society called to order.

Report of Committees.

Unfinished business.

New business.

Adjournment

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WEDNESDAY, MAY 16th.—Afternoon.

3.00. Society called to order.
Election of Officers for ensuing term.
Report of Committee on Nominations.

SECTION ON OBSTETRICS.

"Report of Chairman." H. H. DODSON, M.D.
"Hegar's Sign of Pregnancy." J. W. LONG, M. D.
Voluntary papers pertaining to this Section.
Papers belonging to previous Sections, omitted.
Report of Committees.
Unfinished business.
New business.
Adjournment.

WEDNESDAY, MAY 16th.—Evening.

8.30. Society called to order.
Annual Oration. E. G. MOORE, M.D.
Annual Essay. J. HOWELL WAY, M.D.
Adjournment.

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THURSDAY, MAY 17th.—Morning.

10.00. Society called to order.

SECTION ON GYÆCOLOGY.

Report of Chairman, W. D. PEMBERTON, M. D.

"Cases of Abdominal Section." D. M. PRINCE, M.D.

"Physical Development and Training of Girls." Annie L. Alexander, M. D.

Voluntary papers pertaining to this Section.

Miscellaneous papers and papers omitted from previous Sections.

Reports of Committees.

Unfinished business.

New business.

Adjournment.

THURSDAY, MAY 17th.—Afternoon.

3.00. Society called to order.

Selection of time and place of next meeting.

Installation of officers.

Appointment of Chairmen of Sections and Committees.

Miscellaneous papers.

Verbal reports of cases

Miscellaneous business.

Final Adjournment.

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1849.

1894.

LeGwin Bros., Printers

ARTICLE VI.

OF THE BOARD OF MEDICAL EXAMINERS.

SEC. 1.—All elections to fill vacancies on the Boad of Medical Examiners shall be by ballot, a majority of the votes cast being necessary to elect. The election shall be held on the morning of the second day of the meeting.

SEC. 2.—In the case of vacancies caused by the expiration of term of office, the election shall be for six years, and shall be held during the meeting at which such terms of office shall expire. In the case of a vacancy caused by the death or resignation of a member, the election shall be to fill the unexpired term, and shall be held at the meeting during which the announcement of the vacancy shall be made.

ARTICLE VII.

OF COMMITTEES AND THEIR DUTIES.

SEC. 1.—A committee of three members to be known as the *Committee on Credentials* shall be appointed by the President at the morning session of the first day of each meeting. Their duty shall be to investigate the character and standing of all applicants for membership in the Society, and receive the credentials of any Delegates from other State or District Societies, reporting to the Society the names of such physicians as they think proper. They may ask for instructions from the Society in any doubtful case. Their report shall be in order at any hour during the session.

SEC. 2.—A *Committee on Finance*, to consist of three members, shall be appointed by the President at the morning session of the first day of each meeting. They shall examine the accounts of the Treasurer and report to the Society, making suggestions as to the amount of assessments for the ensuing year, the remuneration of the Secretary and the Treasurer, and such other suggestions concerning the finances of the Society as they may think proper.

SEC. 3.—A *Committee on Nominations*, to consist of five members, shall be appointed by the President at the morning session of the second day of each meeting. They shall nominate an *Orator*, an *Essayist*, a *Leader of Debate*, a *Committee on Publication*, an *Obituary Committee*, delegates to the American Medical Association, the Virginia Medical Association, the South Carolina Medical Association, and such other associations as the Society may determine, all to serve one year; also a *Board of Censors*, to consist of three members and to serve three years.

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of the case. Should a case come to trial they shall make a report of their investigations to the Society, with such recommendations as they deem necessary and proper.

ARTICLE VIII.

OF THE SECTIONS AND VOLUNTARY COMMUNICATIONS.

SEC. 1.—The newly installed President shall, at the last session of each meeting, appoint a member to serve as Chairman of each of the following sections, to-wit: Anatomy and Surgery, Therapeutics and Practice of Medicine, Physiology and Materia Medica, Obstetrics, Gynecology, Medical Jurisprudence and State Medicine, Pathology and Microscopy.

SEC. 2.—At any time after the meeting the Chairman of each section may appoint three such members as he may select as his assistants to work up such items as he may designate, confining himself to the general advancements in his section.

SEC. 3.—The chairmen of sections shall send in to the Secretary, not later than thirty days previous to each meeting of the Society, the titles of papers to be presented by themselves and their assistants to be used by the Secretary in making a programme for the meeting.

SEC. 4.—No paper shall be read before the Society unless the author be present, unless his absence be due to some unavoidable circumstances. A paper presented by proxy may be referred to the Committee on Publication.

SEC. 5.—No paper shall be referred to the Committee on Publication until it has been placed in the hands of the Secretary; and the Secretary shall not return any paper accepted by the Society without the consent of the Society, and then he shall take a receipt for the same.

SEC. 6.—No paper shall be received by or read before this Society that has been presented to any other Society, or that has been offered for publication in any journal; and in the case of any paper accepted the author is supposed to have invested with the Society all rights to its ownership.

SEC. 7.—No paper shall be published in the Transactions of this Society unless approved by the Committee on Publication; and any paper rejected by said committee shall be returned to the author through the Secretary of the Society.

SEC. 8.—It is to be understood that the Society is not to be considered as endorsing all the views and opinions advanced by the authors of papers published in the Transactions of the Society.

ARTICLE IX.

OF THE FUNDS.

SEC. 1.—Funds for defraying the expenses of the Society shall be raised by annual assessments on the active members.

SEC. 2.—Each active member shall, after being duly elected and signing the

Constitution, pay the sum of five dollars as an admission fee, and be subject to the annual assessment of the Society, except for the year of his admission.

SEC. 3.—Should an active member fail to pay the annual assessment two years in succession, he shall be notified by the Treasurer of his delinquency, and if, after this notice, he does not pay his arrearage within sixty days, the Treasurer shall send his name to the Secretary and the member shall not be entitled to receive the Transactions until all dues are paid.

SEC. 4.—Should a member be in arrears for four years and fail to pay after due notice from the Treasurer, his name shall be dropped. *Provided*, he may be re-instated at any meeting after endorsement by the Committee on Credentials, and on the payment of five dollars; and so retain his place on the roll as formerly. But this payment shall not entitle the member to receive the volumes of the Transactions that he has forfeited.

ARTICLE X.

MEETINGS OF THE SOCIETY.

The Society shall hold its meetings annually. The time and place of meeting shall be determined for each succeeding year by a vote of the Society.

ARTICLE XI.

OF THE CODE OF ETHICS.

The Society adops, as a part of its regulations. that part of the Code of Ethics of the American Medical Association which is published by its order.

ARTICLE XII.

PROVISIONS FOR AMENDMENTS.

Any proposition for amending this Constitution shall be presented in writing and shall lay over to be acted upon at the succeeding meeting of the Society If it receives a majority of the votes cast it shall be adopted.

BY-LAWS.

OF THE ORDER OF BUSINESS.

1.—The President, or, in his absence, one of the Vice Presidents in the order of their rank, shall call the Society to order; or in the absence of all these officers a presiding officer shall be chosen by a majority of the members present.

2.—The appointment of a Committee on Credentials and the Committee on Finance.

3.—Report of Committee on Credentials.

4.—Roll call.

5.—Reading of President's message.

6.—Any business requiring early attention may, by permission, be introduced.

7.—Correspondence shall be read by the Secretary.

8.—Written communications upon medical subjects may be read and discussed. This shall include reports from sections as arranged each year by programme.

9.—Oral communications may be made and discussed.

10.—Election of officers.

11.—The selection of a place for the next annual meeting of the Society.

12.—Unfinished business.

13.—Adjournment.

CODE OF MEDICAL ETHICS.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ARTICLE I.

DUTIES OF PHYSICIANS TO THEIR PATIENTS.

SEC. 1.—A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. These obligations are the more deep and enduring because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office, reflecting that the ease, the health and the lives of those committed to their charge depend on their skill, attention and fidelity. They should study, also in their deportment, so to unite tenderness with firmness, and condecension with authority, as to inspire the minds of their patients with gratitude, respect and confidence.

SEC. 2.—Every case committed to the charge of a physician should be treated with attention, steadiness and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed, and the familiar and confidential intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services; none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance should ever be divulged by the physician except when he is imperitively required to do so. The force and necessity of this obligation are indeed so great that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

SEC. 3.—Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

SEC. 4.—A physician should not be forward to make gloomy prognostications, because the savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs, and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquilty of the most

resigned in their last moments. The life of a sick person can be shortened, not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

SEC. 5.—A physician ought not to abandon a patient because the case is thought incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance under such circumstances would be sacrificing to fanciful delicacy and mistaken liberality, that moral duty which is independent of, and far superior to, all pecuniary consideration.

SEC. 6.—Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy and more enlarged views in practice.

SEC. 7.—The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offense, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ARTICLE II.

OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

SEC. 1.—The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties toward the community, and who are required to make so many sacrifices of comfort, ease and health for the welfare of those who avail themselves of their services, certainly have a right to expect and require that their patients should entertain a just sense of the duties which they owe to their medical attendants.

SEC. 2.—The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

SEC. 3.—Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure or any pursuit incompatible with his professional obligations. A patient should also confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits and predispositions of those he attends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

SEC. 4.—Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he

should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms and causes of complaints peculiar to them However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

SEC. 5.—A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

SEC. 6.—The obedience of a patient to the prescriptions of his physician should be prompt and explicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever that may be recommended to them by the self constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious by contravening the plan of treatment adopted by the physician.

SEC. 7.—A patient should, if possible, avoid even the friendly visits of a physician who is not attending to him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in cancert; for, although their modes of treatment may be attended with equal success when applied singly, yet conjointly they are very likely to be productive of disastrous results.

SEC. 8.—When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

SEC. 9.—Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the phisician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

SEC. 10.—A patient should, after his recovery, entertain a just and endearing sense of the value of the services rendered by his physician; for these are of such a character that no mere pecuniary acknowledgement can repay or cancell them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER AND THE PROFESSION AT LARGE.

ARTICLE I.

DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

SEC. 1.—Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing and to extend the bounds of its usefulness. He should therefore observe strictly such laws as are instituted for the government of its members; should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

SEC. 2.—It is not in accord with the interests of public or the honor of the profession that any physician or medical teacher should examine or sign diplomas or certificates of proficiency for, or otherwise be specially concerned with, the graduation of persons whom they have good reason to believe intend to support and practice any exclusive and irregular system of medicine.

SEC. 3.—There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical, and to attain such eminence is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he can not command their respect and confidence, and to both because no scientific attainments can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye and an unclouded head may be essential to the well-being, and even to the life, of a fellow-creature.

SEC. 4.—It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or hand-bills, inviting the attention of individuals affected with peculiar diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

SEC. 5.—Equally derogatory to professional character is it for a physician to hold a patent for any surgicial instrument or medicine; or to dispense a secret nostrum, whether it be the composition or exclusive property of himself or of others. For, if such nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

ARTICLE II.

PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

SEC. 1.—All practitioners of medicine, their wives and their children, while under paternal care, are entitled to the gratuitous services of any one or more

of the faculty residing near them whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment and produce timidity and irresolution in his practice. Under such circumstances medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should not be declined; for no pecuniary obligation ought to be imposed, which the party receiving it would wish not to incur.

ARTICLE III.

OF THE DUTIES OF PHYSICIANS AS RESPECTS VICARIOUS OFFICES.

SEC. 1.—The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he cannot be considered as entitled to the advantages of the frequent long-continued exercises of this fraternal courtesy, without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

SEC. 2.—In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ARTICLE IV.

OF THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

SEC. 1.—A regular medical education furnishes the only presumptive evidence of professional abilities and requirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the pro fession, and of the aids actually furnished byanatomy, physiology, pathology and organic chemistry.

SEC. 2.—In consultations no rivalship or jealousy should be indulged; candor, probity and all due respect should be exercised toward the physician having charge of the case.

SEC. 3.—In consultations the attending physician should be the first to propose the necessary questions to the sick, after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no opinions or prognostications should be delivered which are not the result of previous deliberation and concurrence.

SEC. 4.--In consultations the physician in attendance should deliver his opinion first, and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variations, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

SEC. 5.—The utmost punctuality should be observed in the visits of physicians when they are to hold consultations together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation. But as professional engagements may sometimes interfere and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to a new appointment. If it be the attending physician who is present, he will, of course, see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in writing, and under seal, to be delivered to his associate.

SEC. 6.—In consultations theoretical discussions should be avoided as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

SEC. 7.—All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure

SEC. 8.—Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive; but if the number be equal on each side then the decision should rest with the attending physician. It may, moreover, sometimes happen that two physicians cannot agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions,

as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

SEC. 9.—As circumstances sometimes occur to render a special consultation desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases should sedulously guard against all future unsolicited attendance. As such consultations require an extraordinary portion of both time and attention, at least a double honorarium may be reasonably expected.

SEC. 10.—A physician who is called upon to consult should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified, as far as can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities which are too often practiced by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ARTICLE V.

DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE

SEC. 1.—Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

SEC. 2.—A physician, in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made; no disingenous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

SEC. 3.—The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made no particular inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

SEC. 4.—A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued, which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become disatisfied when they do not experience immediate

relief, and, as many diseases are unusually protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

SEC. 5.—When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

SEC. 6.—It often happens in cases of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

SEC. 7.—When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

SEC. 8.—A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction unless it be expressly desired; and, in the last case, to request an immediate consultation with the practitioner previously employed.

SEC. 9.—A wealthy physician should not give advice gratis to the affluent; because his doing so is an injury to his professional brethren. The office of a physician can never be supported as an exclusively beneficent one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed with which might justly be claimed.

SEC. 10.—When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ARTICLE VI.

OF DIFFERENCES BETWEEN PHYSICIANS.

SEC. 1.—Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a court-medical.

SEC. 2.—As a peculiar reserve must be maintained by physicians towards the public, in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical

men may be painfully assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ARTICLE VII.

OF PECUNIARY ACKNOWLEDGEMENTS.

SEC. 1.—Some general rules should be adopted by the faculty, in every town or district, relative to pecuniary acknowledgements from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATION OF THE PUBLIC TO THE PROFESSION.

ARTICLE I.

DUTIES OF THE PROFESSION TO THE PUBLIC.

SEC. 1.—As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially appertaining to their profession, as on subjects of medical police, public hygiene and legal medicine. It is their province to enlighten the public in regard to quarantine regulations; the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar institutions; in relation to the medical police of towns, as drainage, ventilation, etc.; and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

SEC. 2.—Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coroners' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a post-mortem examination, it is just, in consequence of the time, labor and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium.

SEC. 3.—There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilige. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform military duty, or to testify to the state of health of persons wishing to insure their lives, to obtain pensions, or the like, without a pecuniary acknowledgement. But no individuals in indi-

gent circumstances such professional services should always be cheerfully and freely accorded.

SEC. 4.—It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health, and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustainded by the unwary from the devices and pretentions of artful empirics and imposters. Physicians ought to use all the influence which they may possess, as professors in colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ARTICLE II.

OBLIGATIONS OF THE PUBLIC TO PHYSICIANS.

SEC. 1.—The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism; to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

A RESOLUTION TO DEFINE CERTAIN ARTICLES OF THE CODE OF ETHICS.

WHEREAS, Persistent misrepresentations have been, and still are being made, concerning certain provisions of the Code of Ethics of this Association, by which many in the community, and some even in the ranks of the profession, are led to believe those provisions exclude persons from professional recognition simply because of differences of opinion of doctrines; therefore be it

Resolved: That clause 1, article 4, in the "National Code of Medical Ethics," is not interpreted as excluding from professional fellowship, on the ground of differences in doctrine or belief, those who, in other respects, are entitled to be members of the regular medical profession. Neither is there any other article or clause of the said Code of Ethics that interferes with the exercise of the most perfect liberty of individual opinion and practice.

Resolved: That it constitutes a voluntary disconnection or withdrawal from the medical profession proper to assume a name indicating to the public a sectarian or exclusive system of practice, or to belong to an association or party antagonistic to the general medical profession.

Resolved: That there is no provision in the "National Code of Medical Ethics" in anywise inconsistent with the broadest dictates of humanity, and that the article of the Code which relates to consultations cannot be correctly interpreted as interdicting, under any circumstances, the rendering of professional services, whenever there is a pressing or immediate need of them. On the contrary, to promptly meet the emergencies occasioned by disease or accident, and to give a helping hand to the distressed without unnecessary delay, is a duty fully enjoined on every member of the profession, both by the letter and the spirit of the entire Code. But no such emergencies or circumstances can make it necessary or proper to enter into formal professional consultations with those who have voluntarily disconnected themselves from the regular medical profession in the manner indicated by the preceding resolution.

List of Members

In the Order in Which They Signed the Constitution.

(The effort has been made to obtain the correct address of each member of the Society. Any person noting an error or omission in the roster will please inform the Secretary of the Society, at Wilmington, giving the proper correction.)

Date of Signing.		
1849	Dr. J. B. Dunn	Raleigh.
1851	" Robt. Gibbon	Charlotte,
1852	" A. B. Pierce	Weldon.
1852	" Allman Holmes	Clinton.
1855	" Peter E. Hines	Raleigh
1857	" R. H. Winborne	Barnitz.
1858	" Geo A. Foote	Warrenton.
1859	" Eugene Grissom	Denver, Colorado.
1859	" R. L. Payne	Lexington.
1860	" W. J. Jones	Goldsboro.
1860	" Chas. J. O'Hagan	Greenville.
1860	" J. W. Jones	Tarboro.
1860	" J. K. Ruffin	Wilson.
1867	" Wm. R. Wood	Raleigh.
1867	" P. A. Barrier	Mt. Pleasant.
1867	" Geo L. Kirby	Goldsboro.
1867	" J. F. Shaffner	Salem.
1868	" W. T Cheatham	Henderson.
1868	" Elisha Porter	Rocky Point.
1868	" F. J. Haywood	Raleigh.
1868	" B. P. Alston	Henderson.
1869	" H. T. Bahnson	Salem.
1870	" W W. Lane	Wilmington.
1870	" Chas. Duffy	Newbern.
1870	" Wm. J. Love	Wilmington.
1870	" Jas. McKee	Raleigh.
1870	" Willis Alston	Littleton.
1870	" W. J. H. Bellamy	Wilmington.
1870	" Geo. F. Lucas	Currie.
1871	" W. I. Royster	Raleigh.
1871	" Geo. Gillett Thomas	Wilmington.
1872	" Francis Duffy	Newbern.
1873	" A. G. Carr	Durham.
1873	" J F. Miller	Goldsboro.
1893	" J. M. Hadley	LaGrange.
1873	" J W. Vick	Selma.
1873	" P L. Murphy	Morganton.
1874	" Jos. Graham	Charlotte.
1874	" W. H. Lilly	Concord.
1874	" J. H. McMullen	Edenton.
1874	" T. D. Haigh	Fayetteville.
1874	" W. A. Ingram	Wadesboro.
1875	" L. J. Picot	Littleton.
1875	" D. N. Sills	Castalia.
1875	" D. W Bulluck	Wilmington
1875	" W. H. Whitehead	Rocky Mount.
1875	" R H. Speight	Wrendale.
1876	" W. C. McDuffie	Fayetteville.
1876	" Henry Tull	Kinston.
1876	" J. W. McNeill	Fayetteville.
1876	" J. D. McMillan	Lumberton.
1876	" W. H. McKinnon	Fayetteville.
1877	" J. D. Roberts	Durham.
1877	" Geo W. Long	Graham.

1877	Dr. Geo. W. Graham	Charlotte.
1877	" N. S. Stevens	Salem.
1877	" Richard H. Lewis	Raleigh.
1877	" J. F. Harrell	Whiteville.
1877	" A. M. Lee	Clinton.
1878	" J. R. McClelland	Mooresville.
1878	" R. J. Noble	Smithfield.
1878	" W. H. H. Cobb	Goldsboro.
1878	" J H. Tucker	Henderson.
1878	" E. H. Hornaday	Willow Green.
1878	" I. W. Faison	Charlotte
1879	" I. G. Ector	Friendship.
1879	" Hubert Haywood	Raleigh.
1879	" J. M. Covington	Rockingham.
1879	" S. W. Stevenson	Mooresville.
1879	" W. P. Beall	Greensboro.
1879	" A. D. McDonald,	Wilmington.
1879	" S B. Jones	Charlotte.
1879	" J. J. Cox	High Point.
1879	" D M. Prince	Cheraw, S. C.
1879	" J A. Sexton	Raleigh.
1879	" John C. Walton	Reidsville.
1879	" R. A Hargrave	Robesonville.
1879	" Julian M Baker	Tarboro.
1879	" Thos. E Anderson	Statesville.
1880	" J. M Stansill	Rockingham.
1880	" Thomas Hill	Goldsboro.
1880	" E. de la R. King	Beaufort.
1880	" J. C. Shepard	Wilmington.
1880	" W. C Galloway	Wilmington.
1880	" T. S. Burbank	Wilmington.
1880	" R. W. Thomas	Thomasville.
1880	" C. M. Poole.	Salisbury.
1880	" J. L Nicholson	Richlands.
1880	" A. W. Knox	Raleigh.
1880	" John Whitehead	Salisbury.
1880	" S. J. Montague	Winston.
1880	" J. A. Collins	Enfield
1880	" W. P. Mercer	Elm City
1880	" L. W. Hunter	Sardis
1881	" R. F. Whiteside	Hickory
1881	" W. L. Crump	South River.
1881	" J. A. Reagan	Weaverville.
1881	" G. W. Fletcher	Fletchers
1881	" J. Anderson	Calahan.
1881	" E. Crowell	Lincolnton.
1881	" M. H. Fletcher	Asheville
1881	" T. M Jordan	Hookerton.
1881	" C. Winston	Winter Haven, Fla.
1881	" R. L. Payne, Jr.	Lexington.
1881	" T S. Meisenheimer	Morven.
1881	" T. F. Pharr	Concord.
1881	" H. B. Weaver	Asheville.
1881	" A. J. Battle..	Wadesboro.
1881	" J. H. Williams	Asheville.
1882	" J. R. Irwin	Croft.
1882	" A. R. Wilson	Greensboro.
1882	" K. P Battle	Raleigh.
1882	" H. B Ferguson	Halifax.
1882	" R. S. Young	Concord.
1882	" R. A. Smith	Goldsboro.
1882	" C. A Meisenheimer	Charlotte.
1882	" W. P. Whittington	Asheville.
1883	" W. W. Faison	Goldsboro.
1883	" W. O. McDowell	Scotland Neck.
1883	" N. H. Street	Newbern.
1883	" J. A. Stevens	Clinton.
1883	" T. S. Royster	Townesville.

1883	Dr. I. M. Taylor	Morganton.
1883	" J. H. Hodges	Mt. Olive.
1883	" W. L. Hudson	Hawley's Store.
1883	" Oscar Gregory	Oxford
1883	" F. R. Harris	Henderson.
1883	" H. H. Whitaker	Old Sparta.
1883	" G. C. Edwards	Hookerton.
1883	" E. M. Summerell	Mill Ridge.
1883	" K. M. Ferguson	Cameron.
1883	" P J. Macon	Warrenton.
1883	" N M. McLean	Gibson's Station.
1883	" F. C. James	Bethel.
1883	" B. L. Long	Hamilton.
1883	" N. P. Bodie	Durham.
1884	" W. G. Freeman	Murfreesboro.
1884	" W. C. Whitfield	Sladesville.
1884	" J. A. Burroughs	Asheville.
1884	" F W. Brown	Greenville.
1884	" J. W. Long	Richmond, Va.
1884	" M. P. Perry	Macon.
1884	" Wm. Edwards	Hunts.
1894	" G. J. Robinson	Smithfield.
1884	" M. R. Adams	Statesville.
1884	" G. T. Sikes	Grissom.
1884	" W. B. Pritchard	355 W. 58th St. N Y.
1884	" J. M Manning	Durham.
1884	" F. T. Fuller (D)	Raleigh.
1884	" H. P Murray	Salisbury.
1884	" V. A. Whitley	Norwood.
1884	" G. W. Purefoy	Asheville.
1884	" M. H. Futrell	Conway.
1884	" B. F. McMillan	Plainview.
1884	" J. E. Grimsley	Snow Hill.
1884	" A. M. Herron	Charlotte.
1885	" W. N. Hicks	Fish Dam.
1885	" L P. Sorrell	Kelvin Grove.
1885	" J. C. Whiteside	Newton.
1885	" W. H. Wilson	Gastonia.
1885	" L M. Archey	Concord.
1885	" W. E Powell	Gastonia
1885	" J. B. Powers	Wake Forest.
1885	" F. W. Hughes	Newbern.
1885	" L. L. Sasser	Smithfield.
1885	" E. W. Pugh	Windsor.
1885	" W. L. Best	Johnson's Mill.
1885	" S D. Booth	Oxford
1885	" J. H. Benton	Newton Grove.
1885	" A. P. Dickson	Vollers.
1885	" Patrick Booth (D)	Oxford.
1885	" R. T. Spencer	Chalk Level
1885	" J. A. Hodges	Richmond, Va.
1885	" Annie L. Alexander	Charlotte.
1885	" J. T. Nicholson	Bath
1885	" J. M. Hays	Greensboro.
1885	" A T. Cotten	Morrisville.
1885	" A. D. York	Morrisville.
1885	" J. P. McKay	Averasboro.
1885	" S. L Montgomery	Concord
1885	" K. Leggett	Hobgood
1885	" W. W. Pharr	Query's.
1885	" J. M. Faison	Faison.
1885	" J. W. McGee	Raleigh.
1885	" A W Dorsett	Bethany.
1885	" D. G. Caldwell	Concord.
1885	" W. B. Crisp	Cliffdale (?)
1885	" J. M O'Kelly	Williams' Mills.
1885	" M. F. Fox	Greensboro.
1885	" D. T. Tayloe	Washington.

1885	Dr. Zeno Brown	Greenville.
1885	" F. W. Ritter	Moyock.
1885	" Mayland Bolton	Rich Square.
1885	" W. E. Turlington	Benson.
1885	" S. T. Nicholson	Washington.
1885	" Fleet J. Cooper	Hives.
1886	" G. H. Dodd	Clayton.
1886	" D. B. Zollicoffer	Garysburg.
1886	" E. Rose Dorsett	Salisbury.
1886	" B. S. Utley	Holly Springs.
1886	" R. A. Whitaker	Trenton.
1886	" M. W. Harper	Dunn.
1886	" H. T. Chapin	Pittsboro.
1886	" H. H. Harris	Wake Forest.
1886	" S C. McClure	
1887	" O. D. King	Albemarle.
1887	" W. D. Pemberton	Monroe.
1887	" S S. Daniel	Winton.
1887	" A. W. Goodwin	Raleigh.
1887	" W. H. Bagwell	Greenville.
1887	" J. M. Gallagher	Washington.
1887	" H. W. Lewis	Jackson.
1887	" Henry H. Dodson	Milton
1887	" S. W. Battle, U. S. N	Asheville.
1887	" J. F. Beall	Linwood.
1887	" W. L. Crouse	Lincolnton.
1887	" Joe Hill	Arcadia.
1887	" J. H. Way	Waynesville.
1887	" R. H. Stancell	Margarettesville.
1887	" R A. Patterson	Aurelian Springs,
1887	" J. McDeArmond	Mint Hill.
1887	" R. J. Brevard	Charlotte.
1887	" D. McBryde	Maxton.
1887	" E. C. Register	Charlotte.
1887	" R. W. Tate	Greensboro.
1887	" J. D. Croom	Maxton.
1887	" D. C. Parris	Hillsboro.
1888	" J. C. Grady	Mt. Olive.
1888	" J. A. Faison	Wilmington.
1888	" A. McDougald	Cumberland Mills.
1888	" W. J. Lumsden	Elizabeth City.
1888	" G. H. Moran	Morganton.
1888	" N. B. Herring	Wilson.
1888	" Jas. W. McGee, Jr	Raleigh.
1888	" Arch. McKinnon	Lumber Bridge.
1888	" Duncan Smith	Athens.
1888	" M. McI Tatum	Winnie.
1888	" S. A. Henley	Asheboro.
1888	" W. A. Monroe	Waxhaw.
1888	" H. B. Marriott	Battleboro.
1888	" C. B. Woodley	Kinston.
1888	" J. E. Brothers	Wilson.
1888	" W. S. Anderson	Wilson.
1888	" A. R. Zollicoffer	Weldon.
1888	" J. G. Broadnax	Greensboro.
1888	" Duncan Sinclair	Rowland,
1888	" J. B Ashcroft	Monroe.
1888	" E. H. McCullers	Clayton.
1888	" C. H. Lewis	Farmers.
1888	" E. B. Goelet	Saluda.
1888	" T. T. Ferree	Worthville.
1888	" B. T. Cox	Redalia.
1888	" A. Cheatham	Durham.
1888	" A. S. Harrison	Ringwood.
1888	" Jenness Morrill	Farmville.
1888	" Thomas Stamps	Lumber Bridge.
1889	" Isaac Jackson	Whiteville.

1889	Dr. J. T. J. Battle	Wadesboro.
1889	" W. V. McCauless	Danbury.
1889	" Oscar McMullen	Elizabeth City.
1889	" J E. Wood	Elizabeth City.
1889	" R. N. Cartwright.	Elizabeth City.
1889	" Albert Anderson	Wilson.
1889	" E. B. Ferebee	Belcross.
1889	" W. B. Fearing	Poplar Branch.
1890	" J. W. Booth	Stem.
1890	" W. G. Stafford	Burlington.
1890	" J. S. Lafferty	Concord.
1890	" B. W. Hathaway	Avoca.
1890	" T. L. Booth	Stem
1890	" J. H. Marsh	Fayetteville.
1890	" L. A Hanks	Pittsboro.
1890	" P. B. Loftin.,	Bell's Ferry,
1890	" R. L. Gibbon	Charlotte.
1890	" W. A. Graham	Charlotte.
1890	" R. B. Henderson	Wilton.
1890	" J. L. Ray	Burnsville.
1890	" C. E. Hilliard	Asheville.
1890	" Samuel H. Cannady	Oxford.
1890	" J C. Kirkman	Mt. Vernon Springs.
1890	" W. H. Harrell	Williamston.
1890	" W. B. Crawford	Lexington.
1890	" J. L, Egerton	Hendersonville.
1890	" I. G. Riddick	Youngsville
1890	" J. W. White	Wilkesboro
1890	" E. G. Moore	Elm City.
1890	" J. P. Fearrington	Faison.
1890	" J. J. Mann	Nashville.
1890	" E. R. Michaux	Greensboro.
1890	" Jas. R. Rogers	Sparks, Ga.
1890	" E. P. Snipes	Jonesboro.
1890	" E. C. Laird	Haw River.
1890	" J. P. Munroe	Davidson.
1890	" R A. Martin	Roxboro.
1890	" R. D. Jewett	Wilmington.
1891	" J. B. H. Knight	Williamston.
1891	" J. G. Waldrop	Hendersonville.
1891	" C. Few	Hendersonville.
1891	" J. R. Pope	Scotland Neck.
1891	" M. C. Kimbrough	Smith Grove.
1891	" W. F. Chenault	Elmwood
1891	" C. G Nichols	Roxboro
1891	" P. J. Klutz	Maiden.
1891	" T. J. Wilson	Chapel Hill.
1891	" Richard H. Whitehead	Chapel Hill.
1891	" Jos. L. Laxton	Morganton.
1891	" Karl von Ruck	Asheville.
1891	" D. A. Stanton	High Point.
1891	" W. P. Ivey	Lenoir.
1891	" A. M. Ballard	Asheville.
1891	" W. W. Clarke	Bryson City.
1891	" Jas. A. Turner	Little's Mills.
1891	" R. A. Freeman	Burlington.
1891	" J. Wellington Byers	Charlotte.
1891	" H. Longstreet Taylor	Asheville.
1891	" J. F. Sanderford	Creedmore.
1891	" H. L. McFadyen	Waynesville.
1891	" A O. Jones	Rogers Store.
1891	" D. I. Watson	Southport.
1891	" C. P Ambler	Asheville.
1891	" R. L. Walker	Crab Tree.
1891	" R. C. Ellis	Waynesville.
1891	" D. F. Summey	Leicester.
1891	" C. Daligny	Newhope Academy.
1891	" R. B. Baker	Hickory.

1891	Dr. J. H. Wolff	Sylva.
1891	" W. E. Headen	Chapel Hill.
1891	" W. J. Kloutz	Alexander.
1891	" E. Q. Houston	Davidson.
1891	" D. W. Courts	Reidsville.
1891	" A. J. Monroe	Jonesboro.
1891	" J. Y. Fitzgeraid	Concord.
1891	" J. A. Watson	Asheville.
1891	" W. H. Wilson	Gastonia.
1891	" H K. Edgerton	Selma.
1891	" J. T. Reid	Old Fort.
1891	" J. M. McCorkle	Newton.
1891	" J. C. Black	Pioneer Miils.
1891	" R. W. Palmer	Gulf
1892	" J. Alston Nicholson	Washington.
1892	" E. L. Cox	Jacksonville.
1892	" W. J. Harrell	Aulander.
1892	" P. R. Hatch	Youngsville.
1892	" G L. Clark	Clarkton.
1892	" R W, Mills	Troutmans.
1892	" Russell Bellamy	35 W. 31st St., N. Y.
1892	" W. F Stokes.	Wilmington.
1892	" W. V McCanless	Danbury.
1892	" C. G. Carter	Madison.
1892	" A. G. Jones	Walnut Cove.
1892	" Wade H. Atkinson	Selma.
1892	" G. V. Cate	Taylor's Bridge.
1892	" Silas P. Wright	Wilmington.
1892	" K A. Blue	Laurinburg.
1892	" H. Johnson	Grifton.
1892	" A. J. Patterson	Liberty.
1892	" F P. Gates	Bayboro.
1892	" W. R. Mayo	Jamesville.
1892	" W. E. Fitch	Durham.
1892	" C. B. Ingram	Mt. Gilead.
1892	" T. S. McMullan,	Hertford.
1892	" J. B. Shamburger	Candor.
1892	" Wm. D. McMillan	Magnolia.
1892	" G. M Hackles	Mars Hill.
1895	" E. G. Goodman	El Paso.
1892	" M. E. Gattis	Auburn.
1892	" J. Thomas Wright	Salisbury.
1893	" R. H Stancell, Jr	Margarettsville.
1893	" B. W. Burt	Enno.
1893	" T. B. Williams	Ridgeway.
1893	" J R. Anderson	Morganton.
1893	" M. F. Morphew	Marion.
1893	" J. F. Highsmith	Fayetteville.
1893	" G. M. Bell	Wakefield.
1893	" J. R. Wheless	Centreville.
1893	" W. R. Bullock	Franklinton.
1893	" J. C. Jenkins	Everetts.
1893	" J. A. Matthews	Castalia.
1893	" F. H. Seawell	Archer Lodge.
1893	" R. J Nelson	Robersonville.
1893	" H. F. Long	Statesville.
1893	" M. W. Gibson	Taylorsville.
1893	" Albert Houck	Lenoir.
1893	" J. P. Brown	Ashpole.
1893	" S. Hassell	Roper.
1893	" J. J. L. McCullers	Raleigh.
1893	" I. M. Ramsay	Seaboard.
1893	" W. R. Galey	Graham.
1893	" J. M Flippin	Thomasville.
1893	" C. A. Julian	Thomasville.
1893	" Jas. T Rieves	Julian.
1893	" B. B. Williams	Keyser.
1893	" W. H. Wakefield	Winston.
1893	" C. M. Benton	Newton Grove.

1893	Dr. R. J. Grimes	Bethel.
1893	" E F. Strickland	Bethania.
1893	" H. C. Williams	Aberdeen.
1893	" R. A. Moore	Moncure.
1893	" R L. Davis	Bryson City.
1893	" W. H. Nicholson	Louisburg.
1893	" J. E. Malone	Louisburg.
1893	" Robt. J. Gill	Henderson
1893	" R. L. Gattis	Belle Voir.
1893	" J. G. Blount	Washington.
1893	" G. A. Renn	Raleigh.
1893	" W. K. Hollingsworth	Mt. Airy.
1893	" W J. Hill	Statesville.
1893	" J. H. Gibbon	Charlotte.
1893	" J. M. Templeton	Cary
1893	" M. L. Stevens	Enochville.
1893	" C. N. Roberson	Ascend.
1893	" J. M. Sloan	Gastonia.
1894	" W. T. Richardson	Greensboro.
1894	" J. R. Gordon	Jamestown.
1894	" C. O'H. Laughinghouse	Greenville.
1894	" J. R. Hester	Prospect Hill.
1894	" W. W. McKenzie	Salisbury.
1894	" W. S. Taylor	Mt Airy.
1894	" R. E. Cox	Fremont.
1894	" J. H Mease	Canton
1894	" Thos M. Riddick	Woodville.
1894	" J. D. Jenkins	Penelo.
1894	" C. L. Jenkins	Conetoe.
1894	" C. S. Gilmer	Greensboro.
1894	" G. H. Lewis	Reidsville.
1894	" L. D. Wharton	Greensboro.
1894	" B. F. Hallsey	Roper.
1894	" O. B. Stroud	Ore Hill.
1894	" C. T. Harper	Baltimore, Md.
1894	" J. D. Edwards	Siler City.
1894	" W. C. Steele	Tulin.
1894	" C. E. Walker	Huntersville.
1894	" W. J Vestal	Tyro Shops.
1894	" Jno. E. Logan	Greensboro.
1894	" W. J. Jones, Jr.	Goldsboro.
1894	" W. C. McCauless	Danbury.
1894	" A. A. Kent	Lenoir
1894	" A. E. Ledbetter	Greensboro.
1894	" D. A. Roberson	Guilford College.
1894	" A. H. Harris	Wilmington.
1894	" W. O. Spencer	Yanceyville.
1894	" J. A. Meyers	Lexington.
1894	" L. L. Johnson	Angeline.
1894	" D. R. Schenck	Greensboro.
1894	" J. M. Williams	Greensboro.
1894	" A. J. Crowell	China Grove.
1894	" T. P. Boaz	Stoneville.
1894	" G. M. Ivie	Stoneville.
1894	" G. R. Hughes	Pollocksville.
1894	" D. J. Hill	Germanton.
1894	" W. C. Ashworth	Kernersville.
1894	" G. A. Smith	Siler City.

HONORARY MEMBERS

Dr. J. D. Bellamy, Wilmington, N C.
Dr. Hunter McGuire, Richmond, Va.
Dr. Thos. J. Moore, Richmond, Va.
Dr. W. T. Howard, Baltimore, Md.
Prof. L. A. Sayer, M. D., New York.

HONORARY FELLOWS.

Date of Signing Constitution.		*At Session of*
1886	Dr. E. M. Littlejohn, Thomasville	1890
1887	Dr. J. M. Lawing, Lincolnton	1891
1855	Dr. J. G. Ramsay, Mt. Vernon	1893

LIST OF MEMBERS ALPHABETICALLY ARRANGED.

Adams, M. R.	Statesville	1884
Alexander, Annie L.	Charlotte	1885
Alston, P. B.	Henderson	1868
Alston, Willis	Littleton	1870
Ambler, C. P.	Asheville	1891
Anderson, Albert	Wilson	1889
Anderson, E. A., (D)	Wilmington	1852
Anderson, T E.	Statesville	1879
Anderson, J	Calahan	1881
Anderson, J. R.	Morganton	1893
Anderson, W. S.	Wilson	1888
Archey, L. M.	Concord	1885
Ashcroft, J. E.	Monroe	1888
Ashworth, W. C.	Kernersville	1894
Atkinson, W. H.	604 12th St. S, Washington, D. C.	1892
Bagwell, W. H.	Greenville	1887
Bahnson, H. T.	Salem	1869
Baker, Julian M.	Tarboro	1879
Baker, R. B.	Hickory	1891
Ballard, A. M.	Asheville	1891
Barrier, P. A.	Mt. Pleasant	1867
Battle, A. J.	Wadesboro	1881
Battle, J. T. J.	Wadesboro	1889
Battle, K. P. Jr.	Raleigh	1882
Battle, S. W.	Asheville	1887
Beall, J. F.	Linwood	1887
Beall, W. T	Greensboro	1877
Bellamy, Russell	35 W. 31st St., N. Y.	1892
Bellamy, W. J. H.	Wilmington	1870
Bell, J. M.	Wakefield	1893
Benton, C. M.	Newton Grove	1893
Benton, J. H	Newton Grove	1885
Best, W. L.	Johnson's Mill	1885
Black, J. C.	Pioneer Mills	1891
Blount, J. G.	Washington	1893
Blue, K. A.	Laurinburg	1892
Boaz, J. A.	Stoneville	1894
Bodie, N. P.	Durham	1883
Bolton, Mayland	Rich Square	1885
Booth, J. W.	Stem	1890
Booth, Patrick (D)	Oxford	1885
Booth, S. D.	"	1885
Booth, T. J	Tally-Ho	1890
Booth, T. L.	Stem	1890
Brevard, R. J.	Charlotte	1887

Broadnax, J. G	Greensboro	1888
Brothers, J. E	Wilson	1888
Brown, F. W	Greenville	1884
Brown, J. P	Ashpole	1893
Brown, Zeno	Greenville	1885
Bullock, W. B	Franklinton	1893
Bulluck, D. W	Wilmington	1875
Burbank, T. S	"	1880
Burroughs, J. A	Asheville	1884
Burt, B. W	Enno	1893
Byers, J. W	Charlotte	1891
Caldwell, D. G	Concord	1885
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Carter, C. G	Madison	1892
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Chapin, H. T	Pittsboro	1886
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Chenault, W. F	Elmwood	1891
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Few, C | Hendersonville | 1891
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Fletcher, G. W | Fletchers | 1881
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Moore, E. G.	Elm City	1890
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Nelson, R. J.	Robersonville	1893
Nichols, C. G.	Roxboro	1891
Nicholson, J. L.	Richlands	1880
Nicholson, J. T.	Bath	1885
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Nicholson, W. H	Louisburg	1893
Noble, R. J.	Smithfield	1878
O'Donoghue, D.	Charlotte	1887
O'Hagan, Chas J.	Greenville	1860
O'Kelley, J. M.	William's Mill	1885
Palmer, R. W.	Gulf	1891
Parris, D. C.	Hillsboro	1887
Pate, W. T.	Gibson's Station	1885
Patterson, A. J.	Liberty	1892
Patterson, R. A.	Aurelian Springs	1887
Payne, R. L.	Lexington	1859
Payne, R. L., Jr	"	1881
Pemberton, W. D.	Monroe	1887
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Picot, L. J.	Littleton	1875
Pierce, A. B.	Weldon	1852
Poole, C. M.	Salisbury	1880
Pope, J. R.	Scotland Neck	1891
Porter, Elisha	Rocky Point	1868
Powell, W. E.	Castoria	1885
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Royster, T, S	Townesville	1883
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Seawell, F. H	Earpsboro	1893
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Sloan, J. M	Gastonia	1893
Smith, Duncan	Athens	1888
Smith, G. A	Siler City	1894
Smith, R. A	Goldsboro	1882
Snipes, E. P	Jonesboro	1890
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Speight, R. H	Wrendale	1875
Spencer, R. T	Chalk Level	1885
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Stafford, W. G	Burlington	1888
Stamps, Thos	Lumber Bridge	1888
Stancell, R. H	Margarettsville	1887
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